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Science
Scientific Monthly
Southern Medical Journal

War Medicine
What's New in Home Economics

[1] Occasionally certain articles are covered elsewhere in the JOURNAL.

* Changed to Better Food.

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Diets and Food Items for the Experimental Production of Thiamin Deficiency in Man[1]

MARIETTA ANDERSON, OLAF MICKELSEN, and ANCEL KEYS[2]

Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis

MANY diets have been formulated for the prevention and cure of thiamin deficiency and numerous tabulations of food items rich in this vitamin are available. Diets and food items of the opposite type have been extensively used in animal studies; however, these are generally unsuitable for human application. A diet substantially free of thiamin is desirable for certain types of experiments and diagnostic studies on thiamin deficiency in man. Najjar and Holt (1) have used a mixture of vegetable shortening, casein and dextrimaltose for this purpose but this is not, in our experience, acceptable to persons of normal gustatory sensitivity. The question of palatability is particularly important in view of the fact that anorexia is one of the very earliest symptoms of thiamin deficiency and may force the termination of an experiment before the development of more objective changes. We have had numerous occasions both in the laboratory and in the field to observe that subsistence on distasteful or extremely monotonous diets for a few weeks or even less, may result in so low a total food intake as to produce deterioration even though the diet offered meets all purely nutritional requirements.

The present paper gives the thiamin contents of food items which are very low in this vitamin and four menus, together with essential recipes, for diets which cover all nutritional needs other than thiamin at the level of 3000 to 3500 calories daily. These menus supply not more than 0.015 mg. thiamin per 1000 calories.

The present diet formed the exclusive subsistence of 10 normal men for a period of 39 days. The control subjects on this diet who received thiamin supplementation (2 mg. daily) maintained body weight and good appetite with total absence of any suggestions of nutritional defect. The men who received placebos instead of the thiamin capsules developed anorexia in as little as 10 days, and in 2 or 3 weeks showed pronounced acute thiamin deficiency with nausea, polyneuritis, weakness, and, in one case, failure of the right side of the heart. Administration of thiamin to these men rapidly relieved many symptoms, including anorexia, while the same diet was continued. (The details of these experiments will be presented elsewhere by the authors of this paper and their colleagues: Drs. Austin F. Henschel, Henry Longstreet Taylor, and Josef Brozek, and Mr. Harold Guetzkow.)

ANALYTICAL METHODS

Each food used in the diets was assayed for thiamin by means of a modified thiochrome method (2). If the food had a low moisture content, enough water was added to bring the water content up to about 70 per cent. The amount required was accurately measured but the absolute percentage was estimated by the consistency of the wet food. It was necessary to add this water in order to facilitate the grinding and mixing of the food. After the food was put through a meat grinder, it was mixed for 5 min. in either a large or a small mixer, depending upon the size of the sample. About 200 gm. was homogenized in a Waring Blendor. The sample was then stored at a temperature of −17°C. until analyzed. Each constituent in the diet was analyzed 3 or more times. The values thus obtained were used in calculating the daily intake. This was checked by collecting

[1] Received for publication March 14, 1945. The work described in this paper was done under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Regents of the University of Minnesota. Financial assistance was also provided by the Nutrition Foundation, Inc., and the National Dairy Council, Chicago. Merck and Co., Inc., provided a generous supply of pure vitamins; Abbott Laboratories the choline supplement; and the Quartermaster Corps, U. S. Army, the canned corned beef, roast beef, dehydrated sulfured potatoes, cabbage and carrots.

[2] With the technical assistance of Howard Condiff.

TABLE 1

Thiamin content of foods suitable for use in diets low in vitamin B_1

FOOD	THIAMIN
	mcg./gm.
Angel food cake,* made with dehydrated egg whites	0.070
Apple betty,* canned apples	0.141
Apple sauce, canned, Brook-Dale, Emery Food Co., Chicago	0.085
Beef, corned, canned, Armour's (Paraguay)	0.037
Beef, dried, Swift's Premium	0.452
Creamed dried beef*	0.078
Beef, roast, canned, Swift's (Argentina)	0.023
Creamed beef and carrots*	0.032
Beets, canned, Manchester Canning Co., Manchester, N. Y.	0.204
Butter whey	0.244
Cabbage	
Reconstituted, rehydrated	0.444
Reconstituted, rehydrated, and cooked	0.152
Sulfited (1000 parts per million), rehydrated	0.040
Sulfited, rehydrated, and cooked	0.040
Candy	
Gum drops, Chuckles	0.000
After-dinner mints, Richardson	0.000
Hard candy	0.000
Carrots, dehydrated, Beech-Nut	0.398
Casein, S.M.A., vitamin-free	0.037
Cellu-flour, Chicago Dietetic Supply House	0.035
Cheese, Cheddar, dehydrated, Kraft's	0.400
Cheese, cottage, from University Farm	0.380
Cheese soufflé, made with dehydrated cheese and egg whites	0.042
Coca Cola	0.000/100 cc.
Cocoa, dry powder, Hershey's	0.864
Coffee, Sanka (1 tbsp. per cup, Silex method)	0.346/100 cc.
Cookies, chocolate*	0.080
Corned beef hash, processed 1942, Republic Food Products, Chicago	0.163
Cornstarch	0.000
Crackers, soda, Minute, Griggs Cooper, St. Paul	0.130
Cream, 70% butter fat diluted to 35% with distilled water	0.070
Dextrimaltose, Mead-Johnson (special thiamin-free)	0.000
Dextrose, anhydrous, Wilkins-Anderson, Chicago	0.000
Egg white, dehydrated, Armour's Clover-bloom	0.160
Farina, General Mills, uncooked, unenriched	0.506
Flour, cake, heated at 115° F. for 6 days, Airy Fairy Foods Co., Minneapolis	0.405
Fudge*	0.070
Gelatin, unflavored	0.072
Hominy, canned, fried in butter fat, Vincennes Packing Corp., Indiana	0.000
Honey, from University Farm	0.051
Ice, cherry or pineapple*	0.000

TABLE 1—*Continued*

FOOD	THIAMIN
	mcg./gm.
Jam	
Cherry, Home Brand, Griggs Cooper, St. Paul	0.180
Peach, Home Brand, Griggs Cooper, St. Paul	0.180
Raspberry, Home Brand, Griggs Cooper, St. Paul	0.150
Meat and vegetable hash, processed Dec. 1941, Armour's, Chicago	0.174
Oleomargarine whey, Swift's, contains 14% skim milk	0.238
Orange drink, Nesbitt's	7.010/100 cc.
Peaches	
Canned in syrup, Del Alta, processed 1943, Lincoln Packing Co., Lincoln, Calif.	0.088
Dried, Jubilee, Rosenberg Bros., San Francisco	0.025
Pears, canned, processed 1942, Paulus Bros., Salem, Oregon	0.090
Pickles	
Dill, Hirsch Bros., Louisville, Ky.	0.041
Sweet, Shaeffer's, Pa-Wray Pickle Co., Minneapolis	0.045
Pork, salt, fried crisp	0.156
Potatoes	
Dehydrated, julienne type, reconstituted, cooked, Jack Simplot, Caldwell, Idaho	0.016
Sulfited, cooked	0.016
Prunes, cooked	0.132
Pudding	
Caramel*	0.020
Chocolate, Zombie*	0.100
Prune and rice*	0.068
Vanilla, Jello, General Foods	0.021
Raisins, uncooked	0.360
Rice	
White, cooked	0.048
Puffed, Whiffs-o-rice, Poph-Itt Cereal Co., Minneapolis	0.023
Root beer, Hire's	0.325/100 cc.
Rutabagas, dehydrated, cooked, Washington Dehydrated Food Co., Yakima, Wash.	0.124
Seven-Up, soft drink	0.300/100 cc.
Soup, vegetable*	0.031
Sugar,	
Brown	0.007
White	0.017
Sweet roll*	0.067
Syrup	
Imitation cherry, Minneapolis Beverage Supply Co.	0.000
Imitation pineapple, Minneapolis Beverage Supply Co.	0.003
Staley's Crystal White	0.000
Vienna sausage, Illinois Meat Co., Chicago, 1943	0.454
Waffles*	0.000

* Recipes are given in Table 6 for these foods.

the complete meals for each of the 4 days and then making thiamin analyses of these in the same manner as for the individual items.

GENERAL SELECTION FOR FOOD ITEMS

Experience with "synthetic" foods in human diets led to their elimination in most cases; but wherever they were used, they had to be disguised. Reliance was placed in large part on certain natural foods in which the method of processing eliminates or destroys most of the thiamin. Dehydrated products that have been sufficiently sulfited are generally almost devoid of thiamin. Sulfited dehydrated products in this category which retain their flavor well on reconstitution include potatoes, cabbage, carrots, peaches, and apricots. Some ordinary canned products are extremely low in thiamin, but this is variable. The brands found satisfactory here are indicated in Table 1. It should be noted that canning practices are now in a state of flux and each lot purchased should be checked for thiamin content. Canned apples are usually "safe." Pickles are useful for improving the palatability of the meals and are very low in thiamin. Canned roast beef and corned beef were suitable in the materials used here; all of these meat materials were produced in South America where a solid pack is obtained by prolonged cooking and discarding the liquors. Further reduction in the thiamin content of these canned meats was achieved by storage at 50°C. for about one week.

Many attempts were made to produce foods like breads, cakes or cookies without the use of flour. Although surprising success can be attained with cornstarch and other purified ingredients it was our experience that a small amount of flour greatly improves the products. If unenriched cake flour is stored at about 50°C. for several weeks the thiamin content is less than 0.0005 mg. per gram and accordingly may be used sparingly to improve the baked products.

Butter and cream are valuable in the diet but it is necessary to make special efforts to remove thiamin. Butter oil is prepared by removing the whey from melted butter. Seventy-five per cent cream is separated by high-speed centrifugation and the resulting product diluted with water to the desired consistency. "Cream" of this kind should be prepared with a 15 to 20 per cent butter fat content for coffee or cereals, and a 30 to 35 per cent fat content for whipping.

The provision of an adequate protein intake is one

TABLE 2

Menu No. 1 — Total Calories—3445 (3504*)

FOOD	WEIGHT	CARBO.	PROT.	FAT	Ca	P	IRON	THIAMIN
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	*mg.*
Puffed rice ball	30	24.4	0.6	2.0	0.006	0.011	0.447	0.0002
Sweet roll	10	75.0		20.0	0.420	0.891	16.210	0.0067
Honey	50	39.8	0.2		0.002	0.010	0.350	0.0026
Waffles *and*	150	65.0	12.0	20.0	0.417	0.870	15.700	0.0000
Syrup	100	74.0						0.0000
or								
Zombie *and*	(115)	(65.0)	(12.0)	(16.2)	(0.417)	(0.870)	(15.70)	(0.010)
Fudge	(100)	(88.0)		(4.0)	(0.010)	(0.005)	(1.40)	(0.007)
Jello	150	37.5	2.6					0.0000
Creamed beef and carrots	150	11.6	5.5	14.8	0.007	0.064	0.860	0.0048
Potatoes, mashed	200	60.0			0.098	0.166	2.040	0.0032
Pickles	25	0.7						0.0011
Corned beef hash	50	4.4	6.4	2.8	0.006	0.040	2.450	0.0082
Pineapple ice	80	20.0						0.0000
Butter, whey removed	40			40.0				0.0000
Gelatin, unflavored	40		34.0					0.0029
Caramel pudding	125	40.3		6.8				0.0025
Candy	37.5	33.0						0.0000
Coca Cola and another soft drink	600	75.0						0.0012
Total weight		560.7	61.3	106.4	0.96	2.05	38.06	0.0334
		(574.7)	(61.3)	(106.6)	(0.97)	(2.06)	(39.46)	(0.0504)
Calories		2242.8	245.2	957.6				
		(2298.8)	(245.2)	(959.4)				
Percentage of total calories		65.1%	7.1%	27.8%				
		(65.6%)	(7.0%)	(27.4%)				

* Figures in parentheses are for the diet using Zombie and fudge in place of waffles and syrup.

of the most troublesome problems with these diets. Many "purified" proteins, such as wheat gluten, result in partial hydrolysis which imparts very disagreeable flavors. Gelatin is useful; however, it is a

TABLE 3

Menu No. 2 Total Calories—3339

FOOD	WEIGHT	CARBO.	PROT.	FAT	Ca	P	IRON	THIAMIN
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	*mg.*
Dried peaches	30	20.8	0.9	0.2	0.018	0.036	1.830	0.0008
Sweet roll	110	75.0		20.0	0.420	0.891	16.210	0.0067
Honey	50	39.8	0.2		0.002	0.010	0.350	0.0026
Cheese soufflé	125	8.6	6.4	19.0	0.094	0.075	0.160	0.0053
Crackers	10	7.5	1.0	1.0	0.002	0.012	0.180	0.0013
Prune-rice pudding	50	37.5	5.0	5.0	0.007	0.020	0.319	0.0034
Creamed chipped beef	150	2.2	10.6	15.9	0.007	0.181	2.240	0.0117
Potatoes, mashed	200	60.0			0.098	0.166	2.040	0.0032
Pickles	25	0.7						0.0011
Cherry ice	80	20.0						0.0000
Butter, whey removed	40			40.0				0.0000
Gelatin	40		34.0					0.0029
Chocolate pudding	115	65.0	12.0	16.2	0.417	0.870	15.700	0.0100
Caramel pudding	125	40.3		6.8				0.0025
Candy	37.5	33.0						0.0000
Coca Cola and another soft drink	600	75.0						0.0012
Total weight		485.4	70.1	124.1	1.07	2.26	39.03	0.0527
Calories		1941.6	280.4	1116.9				
Percentage of total calories		58.2%	8.4%	33.4%				

TABLE 4

Menu No. 3 Total Calories—3228

FOOD	WEIGHT	CARBO.	PROT.	FAT	Ca	P	IRON	THIAMIN
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	*mg.*
Puffed rice ball	30	24.4	0.6	2.0	0.006	0.011	0.447	0.0002
Sweet roll	110	75.0		20.0	0.420	0.891	16.210	0.0067
Honey	50	39.8	0.2		0.002	0.010	0.350	0.0026
Corned beef hash	50	4.4	6.4	2.8	0.006	0.040	2.450	0.0083
Potato patty	150	45.0			0.073	0.124	1.530	0.0024
Vanilla pudding	100	35.0		2.0	0.083	0.058	0.410	0.0021
with								
Peaches, canned	25	4.5	0.1		0.003	0.004	0.050	0.0022
Hominy	200	47.4	5.2	0.4	0.020	0.140	1.800	0.0000
Roast beef, canned	50		15.0	3.0	0.080	0.161	2.250	0.0012
Pickles	25	0.7						0.0011
Angel food cake	50	33.4	0.8		0.004	0.013	0.110	0.0035
Butter, whey removed	40			40.0				0.0000
Gelatin	40		34.0					0.0029
Chocolate pudding	115	65.0	12.0	16.2	0.417	0.870	15.700	0.0100
Caramel pudding	125	40.3		6.8				0.0025
Candy	37.5	33.0						0.0000
Coca Cola and another soft drink	600	75.0						0.0012
Total weight		522.9	74.3	93.2	1.11	2.32	41.31	0.0469
Calories		2091.6	297.2	838.8				
Percentage of total calories		64.8%	9.2%	26.0%				

ordinary soy protein, and lactalbumin, retain a certain amount of thiamin which is very difficult to remove. Efforts to purify these proteins are apt to poor quality protein and only limited quantities are acceptable to most people. It is best taken as a "medicine" in soda pop rather than (cont'd on p. 7)

TABLE 5

Menu No. 4 Total Calories—3257

FOOD	WEIGHT	CARBO.	PROT.	FAT	Ca	P	IRON	THIAMIN
	gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*mg.*	*mg.*
Dried peaches	30	20.8	0.9	0.2	0.018	0.036	1.830	0.0008
Sweet roll	110	75.0		20.0	0.420	0.891	16.210	0.0067
Honey	50	39.8	0.2		0.002	0.010	0.350	0.0026
Vegetable soup	225	11.4	0.2	12.0	0.006	0.007	0.105	0.0070
Crackers	10	7.5	1.0	1.0	0.002	0.012	0.180	0.0013
Apple betty	50	16.3	0.3	5.0	0.002	0.003	0.090	0.0071
Corned beef, canned	50		12.6	6.0	0.006	0.059	4.900	0.0019
Cabbage slaw	100	5.4	1.4	0.2	0.034	0.025	0.300	0.0040
Potatoes	200	60.0			0.098	0.166	2.040	0.0032
Chocolate cookies	30	20.2		3.4				0.0024
Toffee	30	24.6		3.6	0.010	0.002	0.468	0.0000
Butter, whey removed	40			40.0				0.0000
Gelatin	40		34.0					0.0029
Chocolate pudding	115	65.0	12.0	16.2	0.417	0.870	15.700	0.0100
Caramel pudding	125	40.3		6.8				0.0025
Candy	37.5	33.0						0.0000
Coca Cola and another soft drink	600	75.0						0.0012
Total weight		494.3	62.6	114.4	1.015	2.081	42.17	0.0536
Calories		1977.2	250.4	1029.6				
Percentage of total calories		60.7%	7.7%	31.6%				

TABLE 6

*Recipes**

"Bread"—Sweet Roll

(One large roll)

Temperature: 350°F.
Time: 40 min.

30 gm. cornstarch
20 gm. cake flour
3 gm. Salts No. 4**
¼ tsp. baking powder
20 gm. hydrogenated fat
20 gm. water
10 gm. brown sugar

1. Sift all dry ingredients except brown sugar.
2. Cut in fat.
3. Add water to mixture.
4. Pat dough into oblong shape and sprinkle with brown sugar. (When several are made, the dough may be patted into a large oblong, sprinkled with sugar, rolled and sliced into individual sweet rolls.)
5. Place in greased pan.

Waffles

(Two waffles)

44 gm. cornstarch
21 gm. dextrose
3 gm. Salts No. 4**
¼ tsp. salt
12 gm. casein
1 tsp. baking powder
20 gm. hydrogenated fat, melted
75 gm. water

1. Sift dry ingredients together.
2. Combine melted fat and water.
3. Add to dry ingredients; beat well.
4. Bake 4 min. in electric waffle iron.

White Sauce (¾ cup)

3 gm. cornstarch
12 gm. butter fat (whey removed)
7 gm. cake flour
¾ cup water
salt and pepper

1. With small amount of water, make a cornstarch paste.
2. Melt butter and add flour, stirring constantly.
3. Add rest of the water to butter and flour.
4. Add cornstarch paste.
5. Cook until thickened.
6. Season with salt and pepper.

* The water content of these recipes will vary somewhat according to the absorbency of the casein.

** Composition of Salts No. 4 (Phillips, P. H. and Hart, E. B , J. Biol. Chem. 109: 657–663, 1935):

	%
$NaCl$	17.0
K_2HPO_4	32.8
$Ca_2H(PO_4)_2$ (anhyd)	6.3
$MgSO_4 \cdot 4H_2O$	10.4
$CaCO_3$	30.5
Ferric Citrate $6H_2O$	2.8
KI	0.1
$MnSO_4 \cdot 4H_2O$	0.04
$ZnCl_2$	0.03
$CuSO_4 \cdot 5H_2O$	0.03
	100.0

TABLE 6—*Continued*

Creamed Beef and Carrots

To the white sauce recipe, add:
8 gm. dehydrated carrots, rehydrated and cooked
15 gm. canned roast beef

Creamed Dried Beef

To the white sauce recipe, add:
30 gm. chipped beef

Cheese Soufflé

(One serving)

Temperature: 350°F.
Time: 30 min.
6 gm. cornstarch
12 gm. butter fat (whey removed), melted
10 gm. dehydrated Cheddar cheese
½ cup water
3 gm. dehydrated egg white + 21 gm. water
salt and pepper

1. Mix cornstarch and ½ cup water.
2. Add to melted butter, cook until thick.
3. Mix dehydrated cheese with enough water to make a smooth paste, to prevent formation of lumps in the sauce.
4. Add cheese to white sauce.
5. Add 21 gm. water gradually to the dehydrated egg whites, beating constantly.
6. Fold stiffly beaten whites into sauce.
7. Bake in a greased casserole which has been placed in a pan of water.

Vegetable Soup

(One serving)

12 gm. butter fat (whey removed)
3 gm. dehydrated onions
5 gm. rutabagas, rehydrated
5 gm. carrots, rehydrated
10 gm. potatoes, rehydrated
5.5 gm. cornstarch
1 cup water
salt and pepper

1. Add onions to butter, sauté until brown.
2. Add vegetables and ¾ cup water; simmer 20 min.
3. Add cornstarch mixed with ¼ cup water; simmer until slightly thickened.
4. Season with salt and pepper.

Chocolate Pudding

(One serving)

51 gm. sugar
9 gm. cornstarch
12 gm. casein
3 gm. Salts No. 4
5 gm. cocoa
20 gm. fat (half butter fat, whey removed, and half hydrogenated fat)
50 gm. boiling water

1. Mix dry ingredients thoroughly.
2. Melt fat in the boiling water.
3. Add fat and water to dry ingredients; stir until mixture is smooth.
4. Cook in double boiler.
5. When slightly thickened, pour into individual serving dish to cool. This pudding tastes best when cold.

Zombie

1 chocolate pudding (above recipe)
100 gm. cola soft drink
¼ cup coffee

Mix well in a Waring Blendor. Part of the day's allotment of gelatin was sometimes added to these ingredients before mixing.

Caramel Pudding

(One serving)

19 gm. sugar
50 gm. water
6.8 gm. butter fat (whey removed)
12.3 gm. dextrose
10 gm. cornstarch
25 gm. water
2 gm. vanilla
pinch of salt

1. Caramelize the sugar.
2. Add 50 gm. water and butter fat.
3. Add 25 gm. water to combined cornstarch and dextrose.
4. Add this mixture to syrup; cook until thick.
5. Add vanilla and salt.
6. Pour into individual serving dish.

Apple Betty

(Two servings)

Temperature: 425°F.
Time: 30 min.
70 gm. canned apples (solid pack)
6 gm. butter fat (whey removed)
17.6 gm. sugar
4.6 gm. flour
1 gm. cinnamon

1. Place apples in greased baking pan.
2. Cut butter into dry ingredients; sprinkle on top of apples.

Prune-Rice Pudding

(One serving)

Temperature: 325°F.
Time: 1 hr.
15 gm. cooked rice
3 gm. cooked prunes
4.3 gm. sugar
1.4 gm. dehydrated egg whites + 9.8 gm. water
salt and vanilla
2 tbsp. liquid (1 part 35% cream + 4 parts of water)

1. Combine all ingredients except water and egg whites.
2. Add 9.8 gm. water gradually to egg whites, beating constantly.
3. Fold stiffly beaten egg whites into rice mixture.
4. Bake in greased pan.

Ice

(One serving)

1 gm. gelatin
15 gm. sugar
pinch of sodium citrate
45 gm. cold water
½ tbsp. pineapple *or*
⅔ tbsp. cherry fountain syrup

1. Soften gelatin with cold water.
2. Add boiling water, citrate, and sugar.
3. When cool, add syrup.
4. Freeze in refrigerator tray.

Toffee

13 gm. sugar
10 gm. butter fat (whey removed)

1. Caramelize sugar.
2. Add butter; cook until mixture hardens to a "string"

TABLE 6—*Continued*

when poured from a spoon.
3. Pour on a greased plate to cool and harden.

Chocolate Cookies

(Three cookies)

Temperature: 350°F.
Time: 15 min.
32 gm. cornstarch
4 gm. cocoa
⅛ tsp. salt
18 gm. sugar
½ tsp. baking powder
11 gm. butter fat (whey removed), melted
15 gm. honey
12 gm. water

1. Sift dry ingredients.
2. Add melted butter, honey and water.
3. Roll into 3 balls and flatten. These may also be formed into one long roll, stored in the refrigerator, sliced, and baked when needed.

Fudge

(Sixteen servings)

6 cups sugar
⅓ cup cocoa
¼ tsp. salt
1 tbsp. cornstarch
⅓ cup light corn syrup
2 cups water
2 tbsp. butter fat (whey removed)
1 tsp. vanilla

1. Cook dry ingredients, corn syrup, and water until the syrup reaches "soft ball" stage.
2. Add vanilla and butter.
3. When cool, beat until thick and light brown.

Puffed-Rice Balls

(Twenty servings of approximately 30 gm.)

1 6-oz. package puffed rice
½ cup granulated sugar
½ cup brown sugar
pinch of salt
1 cup light corn syrup
2 tbsp. butter fat (whey removed)

1. Toast puffed rice in a slow oven until crisp.
2. Cook syrup containing all other ingredients to the "string" stage.
3. Pour rice into the syrup; mix very quickly.
4. Pour mixture into greased pan to harden.

Turn out before completely cool and cut in squares.

Angel Food Cake

Armour's recipe.
See booklet: *For Baking (With) Armour's Clovcrbloom Eggs*

as a food if reasonably large amounts are to be ingested. "Vitamin-free" casein is useful as a protein supplement, but the commercial preparations are not always vitamin-free and all have a characteristic, unpleasant taste. The recipes given here for waffles and pudding help to disguise this taste.

MENUS AND RECIPES

Monotony in the diet is largely prevented, or at least reduced to relative unimportance, by the use of 4 different menus which are rotated in order. Undoubtedly an ingenious dietitian would be able to devise further variations on the general scheme presented here (*cf.* Tables 2–5). The recipes for the special foods have been included in this report because they must be followed closely if the total thiamin content is to be kept below 0.015 mg. per 1000 calories (*cf.* Table 6).

It is essential that no food items beyond those listed here be added to the diet without checking their thiamin content. Particular care must be exercised against the temptation to add small amounts of materials for flavoring, as some of these flavoring agents contain very considerable amounts of thiamin.

The proximate analyses of the foods listed in the menus are based on such general tables as those compiled by the Committee on Food Composition of the National Research Council and other general tables (3–5). The thiamin contents have been determined by actual analyses.

Each subject was given each day the following supplements: 5000 I.U. vitamin A, 2 mg. riboflavin, 10 mg. nicotinamide, 2 mg. pyridoxine, 5 mg. calcium pantothenate, 1 gm. choline, 25 mg. vitamin C, and 1.5 gm. autoclaved brewers' yeast. All of these substances except choline were given in tablet form. The choline was in a specially prepared syrup put out by Abbott Laboratories.

If studies on pyramin (the pyrimidine portion of the thiamin molecule) are to be made, it may be advisable to omit the autoclaved yeast since this may adversely influence the urinary excretion of this substance.

SUMMARY

1. Menus and diets are given which are substantially free from thiamin, yet reasonably palatable to normal men for many weeks. These special menus contain not more than 0.01 to 0.02 mg. thiamin per 1000 calories.

2. When supplemented with 1 to 2 mg. pure thiamin daily, these special diets appeared to be nutritionally adequate in all respects for at least 6 weeks.

3. Without thiamin supplementation, subsistence of normal men on these diets results in marked signs and symptoms of deficiency within 10 to 15 days and acute prostration and collapse within 25 days.

4. Thiamin concentration was measured in 74 food items. Recipes are given for 17 dishes using these food items. Four complete menus based on these recipes and food items are given. The nutritional composition of these menus is also included.

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Nutrients Consumed by Army Students at the University of Missouri[1]

LAURA M. FLYNN and A. G. HOGAN

Missouri Agricultural Experiment Station, Columbia

DURING the first World War, Murlin and his associates (1) investigated the food served soldiers in U. S. Army training camps. The methods then available permitted evaluation of the food only in terms of protein, fat, and carbohydrate. Recently Macrae (2, 3) has studied the daily intake of protein, fat, calcium, ash, and riboflavin in the food of the Royal Air Forces; Howe (cf. 4), the protein, fat, and calcium content of food served the U. S. Army during the second World War; while McCay *et al.* (5) analyzed the nutritive value of food served in large naval messes for total solids, ash, protein, fat, carbohydrates, calories, calcium, thiamin, riboflavin, niacin, and ascorbic acid. Odle and Kramer (6) have studied the nutritive value of food of Army students in Kansas. Values for energy, protein, carbohydrate, fat, calcium, phosphorus, and iron were calculated by the item-by-item method. They used the Army short method (7) to calculate the vitamin content. Their report included an analysis of the distribution of expenditures among specified groups of foods and the proportion of nutrients contributed by each group.

The presence of an A. S. T. P. (Army Specialized Training Program) unit at the University of Missouri presented another opportunity to secure information upon the adequacy of food provided for servicemen. Analyses were made to determine the average daily intake of nutrients in the food served during one week. The grouping of similar foods into composites permitted an estimate, based upon actual analytical data, of the contributions of each class of foodstuffs to the dietary. The availability of new tables of food composition (7, 8), facilitated a comparison of calculated nutritive values with experimental determinations.

The group of servicemen stationed at the University of Missouri at the time of this investigation was made up of members of an A.S.T.P. unit and the Army Air Forces. The A.S.T.P. unit included 1400 men, grouped by age as follows: 18 to 20 years—800; 20 to 22 years—400; 22 to 24 years—100; over 24 years—100. The Army Air Forces group comprised 1000 men with approximately the same distribution by age. The same menu was served to all servicemen, but samples for assay were collected in only one kitchen and mess hall. The number of men served daily in this building varied during the week from 500 to 600.

The work of food preparation was scheduled so that many foodstuffs were prepared at appropriate intervals. For example, the food for the men to be served last was still in preparation while the food of the early comers was being served over the counter. The maximum time elapsing between the completion of preparation and the service of vegetables, meats, salads, etc., was one hour.

The meals in this kitchen were prepared by civilian cooks under the competent management of trained and experienced dietitians. The storerooms, refrigeration units, quantity cookery equipment, and cafeteria counter were comparatively new and modern in design and materials. Under such excellent conditions we would expect maximum retention of vitamins and other nutrients. Data from our studies, therefore, would not necessarily be an indication of what might be expected in the average Army mess.

EXPERIMENTAL TECHNIQUES

Samples were collected for 21 consecutive meals during the week of February 14 to 20, 1944. Three sets of samples were collected: "raw" materials (foods as they entered the kitchen); prepared foods served at the beginning of the meal hour; and prepared foods served at the end of the meal hour.

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Sampling was done continuously throughout each day of the week. The "raw" foods were sampled as they were brought into the kitchen for preparation for each meal. Samples of foods as served were collected from the cafeteria counter at the beginning and at the end of each serving period. The object of the last sampling was to determine the maximum destruction of vitamins after the cooking process was completed. Our assays showed, however, that the vitamin content of foods collected at the beginning of the serving period was practically identical with that of foods collected at the end.

Weights of samples taken were based on calculations from recipes which had been standardized for 100 servings. An amount of each ingredient representing 1 per cent of that in each recipe was taken for the "raw" sample. The cooks kept careful records of any changes necessary in the recipes. Adjustment was made during the last two days for any changes made throughout the entire week in amounts of flour, sugar, milk, etc. Only well-standardized recipes had been chosen and few adjustments were necessary. Weights of samples of foods as served are shown in Table 1. The sizes of these samples were based upon "average servings" as determined by the dietitians and each serving represented an estimated 1 per cent of the total amount of food prepared according to each recipe. Data from proximate analyses on "raw" foods and foods as served indicate good agreement between the weights of samples of uncooked foods and of foods as served.

When collecting samples, assumptions, based upon the experience and observations of the supervising dietitians, were arbitrarily made as to the food choices of the average man. The amount of butter allowed per meal was two pats (60 pats per pound) with hot breads or toast, and one with cold breads. Three slices of bread were eaten per meal. When several breadstuffs were offered it was assumed that the man would take two slices of whole grain bread and one slice of white bread. One half pint milk was used with the breakfast cereal, and three half-pint bottles as beverage with the three meals. (All beverage milk was homogenized and fortified with vitamin D.)

As the individual items were collected, each was weighed and stored at once in a covered waxed paper cup. All materials except dry cereals were sharp frozen with crushed dry ice immediately after weighing. The materials were stored at $-40°$ until collections were complete and then grouped according to the type of food. The frozen samples were ground through a food chopper with liberal amounts of dry ice, and the chopped material was thoroughly mixed to secure uniform composites. Materials were kept frozen throughout homogenization and returned to storage at $-40°$ until assayed for vitamins.

Vitamin assays were run in duplicate, using 100-gm. samples for extraction. The following methods were used in the assays: carotene, Moore and Ely (9); vitamin A (adaptation of Carr-Price method), Zscheile *et al.* (10); thiamin, Conner and Straub (11); riboflavin, Snell and Strong (12); niacin, Snell and Wright (13); ascorbic acid, Morrell (14); dehydroascorbic acid, Roe and Oesterling (15).

Upon completion of vitamin assays all composites were subjected to proximate analyses. The composites, except those of milk and fats, were vacuum-dried and ground in a Wiley mill to a size permitting passage through a 1-mm. sieve.

After the completion of all laboratory tests, estimates of the respective nutrients were made for comparison with experimental results, using the tables compiled by Berryman and Howe (7) for computing the nutritive value of Army ration. Since our weights for fruits and vegetables were on an E.P. rather than an A.P. basis, the estimates of nutrients in fruits and vegetables were calculated from values published by the National Research Council (8).

FOOD SERVED AND ITS NUTRITIVE VALUE

Menus for the week are given in Table 1 which includes the weights of average servings of the items listed. Even a cursory reading of the menus would lead one to expect a high rating for the diet. Milk, citrus fruits, tomatoes, green and yellow vegetables, potatoes, eggs, whole grain or enriched cereals and breads, and lean meat, fish, and poultry were used in amounts ample to satisfy the highest standards of meal planning.

The vitamin content of the "raw" foodstuffs is summarized in Table 2 which was compiled from laboratory assays. It is of interest to note the large fraction of total vitamin A supplied by carotene in fruits and vegetables. The one serving of liver included in the meat composite contributed largely to the vitamin A from animal sources. Fats (butter and margarine) and milk follow the green and yellow vegetables and liver as sources of vitamin A.

Our experimental data indicate that approximately one third of the thiamin for the week was derived from cereals, one third from meat and meat substitutes, and one third from vegetables, fruits, and milk. Almost half of the riboflavin was furnished by milk, about one third by meat, and the rest by cereals, fruits, and vegetables. About half of the niacin was contributed by the meat composite, about one fourth by the cereals, and the remainder by fruits, vegetables, and milk.

Almost the entire amount of ascorbic acid was provided by the fruits and vegetables, as would be expected. Assays were made for both reduced and total ascorbic acid. Our data indicate that 42 per cent of the total ascorbic acid in the composite of "raw" fruits and vegetables was in the reduced form at the time of analysis; while, 68 per (cont'd on p. 11)

TABLE 1

Menu for one week

BREAKFAST		DINNER		SUPPER	
February 14					
	gm.		*gm.*		*gm.*
Orange	(E.P.) 165.0	Vegetable soup		Cube steak	111.6
Pettijohns	171.2	(liquid)	98.0	Gravy	51.8
Link sausage	50.2	(solid)	41.4	Steamed potatoes	97.3
French toast	91.5	Creamed chipped beef on spaghetti	225.8	Buttered green peas	65.0
Butter	13.9	Buttered asparagus	136.0	Bread	
Hot syrup	60.0	Sweet pickle halves	16.1	Whole wheat	56.8
Milk, 1 pt.		All-bran rolls	126.0	White	27.8
		Butter	16.2	Butter	8.2
		Steamed apples	137.5	Cole slaw	84.2
		Whipped cream	10.6	Pumpkin pie	137.2
		Milk, ½ pt.		Milk, ½ pt.	
February 15					
	gm.		*gm.*		*gm.*
Grapefruit	101.0	Creamed celery soup (liquid)	145.0	Meat and vegetable pie	274.5
Cracked wheat	171.7	(solid)	75.7	Mashed potatoes	116.4
Bacon	36.1	Boston baked beans with ham	196.5	Bread	
Fried egg	49.6	Lyonnaise carrots	126.3	Cracked wheat	58.8
Toast	73.3	Head lettuce, French dressing	65.1	White	28.4
Butter	17.2	Butter	14.8	Butter	8.2
Milk, 1 pt.		Rice pudding, thin cream	152.4	Stuffed pear half, fruit dressing	98.8
		Corn bread	149.5	Plain cake, chocolate sauce	119.4
		Milk, ½ pt.		Milk, ½ pt.	
February 16					
	gm.		*gm.*		*gm.*
Tomato juice	148.4	Scalloped chicken and noodles	184.7	Chicken giblet soup	160.5
Shreddies	50.5	Baked potato	210.0	Meat loaf	134.0
Sausage pattie	70.8	Parsley buttered turnips	100.0	Gravy	54.6
Boiled egg	48.0	Bread		Hashed brown potatoes	95.5
Baking powder biscuits	140.5	Whole wheat	64.2	Buttered whole grain corn	150.0
Raspberry jelly	15.5	White	28.1	Cross-cut pickles	15.6
Butter	15.6	Butter	17.6	Plain muffin squares	82.1
Milk, 1 pt.		Orange and apple wedge salad	128.3	Butter	13.6
		Fruit dressing	21.0	Frozen apricot pie	151.7
		Hot gingerbread, hard sauce	78.8	Whipped cream	21.3
		Milk, ½ pt.		Milk, ½ pt.	
February 17					
	gm.		*gm.*		*gm.*
Grapefruit	(A.P.) 134.8	Braised liver	95.0	Roast pork loin	113.0
Wheatsworth	205.0	with onion	15.0	Gravy	56.2
Scrambled eggs with minced ham	109.0	Steamed potatoes	149.0	Glazed apple	51.5
Raisin bread toast	101.0	Breaded tomatoes	165.0	Browned sweet potato	160.0
Grape jam	20.0	Bread		Buttered cauliflower	85.0
Butter	17.6	Rye	76.1	Plain rolls	171.6
Milk, 1 pt.		White	27.4	Butter	14.5
		Butter	8.1	Oatmeal drop cookies	74.2
		Celery hearts	56.9	Milk, ½ pt.	
		Ice cream	56.4		
		Milk, ½ pt.			

TABLE 1—*Continued*

BREAKFAST		DINNER		SUPPER	
February 18					
	gm.		*gm.*		*gm.*
Grapefruit juice	148.0	Tomato bouillon with spaghetti	175.6	Roast veal	113.0
Bran flakes	23.2	Salmonburgers	133.0	Gravy	45.0
Canadian bacon	25.0	Catsup	14.5	Dressing	108.5
Poached egg	52.0	Buttered carrots and peas	73.2	Mashed potatoes	94.9
Toast	64.3	Buns	55.4	Buttered green beans	104.0
Butter	14.5	Butter	15.1	Vienna bread	60.8
Milk, 1 pt.		Shredded lettuce	65.0	Butter	8.0
		Mayonnaise	23.0	Sour pickles	35.0
		Cherry cobbler	150.4	Norwegian prune pudding, lemon sauce	148.1
		Milk, ½ pt.		Milk, ½ pt.	
February 19					
	gm.		*gm.*		*gm.*
Orange	163.7	Beef broth with vegetables	163.0	Breaded pork chop	154.9
Oatmeal	190.3	Spanish rice	183.5	Gravy	63.8
Smoked link sausage	50.3	Browned parsnips	65.0	Steamed potatoes	113.0
Fried potatoes	113.0	Bread		Buttered spinach, vinegar	113.0
Toast	68.5	Cracked wheat	63.0	Bread	
Strawberry preserves	21.0	White	30.0	Whole wheat	68.4
Butter	17.0	Butter	8.0	White	17.5
Milk, 1 pt.		Apple and pineapple salad	111.1	Butter	7.5
		Fruit dressing	17.5	Peach salad	70.2
		Butterscotch pudding, thin cream	108.1	Fruit dressing	19.0
		Milk, ½ pt.		Ice box cookies	76.2
				Milk, ½ pt.	
February 20					
	gm.		*gm.*		*gm.*
Grapefruit	100.2	Tomato juice	150.0	Cream of potato soup	177.5
Cornflakes	20.0	Country steak	113.0	Crackers	35.9
Bacon	27.9	Gravy	66.9	Peanut butter	71.6
Griddle cakes	167.1	Mashed potatoes	142.0	Sandwich bread	52.6
Hot syrup	42.0	Buttered broccoli	85.0	Butter	9.6
Butter	16.0	Rolls	200.8	Pickles	17.0
Milk, 1 pt.		Butter	16.5	Hard cooked egg	50.0
		Raw carrot sticks	36.5	Head lettuce, mayonnaise	15.3
		Chocolate dessert	114.5	Half pear, juice	129.0
		Milk, ½ pt.		Milk, ½ pt.	

cent of the total ascorbic acid in the composite of fruits and vegetables as served was in the reduced form when analyzed. Repeated assays, comparing results by several methods, showed that these data were correct. Our samples had been ground with a metal grinder and were passed through a sieve of copper wire several times. Although the samples were ground in the frozen state and kept frozen until assayed, there was ample opportunity for contamination with metal catalysts during homogenization of the material. The "raw" fruits and vegetables had undergone no treatment to destroy oxidases.

The data on vitamin content in Table 3 are averages of vitamin assays on samples collected at the beginning and at the end of the serving period. Results from these two sets of assays were nearly identical. It is to be noted that the composites in Table 3 were not identical with corresponding composites in Table 2. For example, part of the sugar, flour and cereal appearing in the cereal composite in Table 2 was used in the preparation of the cooked fruits and vegetables in Table 3. Portions of the fat, milk, and eggs from the composites in Table 2 were used for baked products included with cereals in Table 3. Our data indicate small losses of each of the vitamins in food preparation, with niacin and total ascorbic acid representing the largest losses. In considering our results it must be remembered that many of the foodstuffs included on the menus

TABLE 2

Vitamin content and proximate analysis of "raw" foodstuffs used per man per week

FOOD CLASSIFICATION	BASIS	WEIGHT	DRY MATTER	VITAMIN A		THIAMIN	RIBOFLAVIN	NIACIN	ASCORBIC ACID		CONSTITUENTS OF DRY MATTER							
				Total	From carotene				Total	Reduced	Protein	Ether extract	Total ash	Calcium	Phosphorus	Iron	Carbohydrates: Crude fiber	Carbohydrates: Sugars and starch
		gm.	%	*I.U.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*mg.*	*gm.*	*gm.*	*gm.*	*mg.*	*gm.*	*gm.*	*gm.*	*gm.*
Meat, fish, poultry, nuts, eggs	Experimental	2,851.5	44.4	25,740	7,269	6.19	7.76	131.03			478.57	679.57	47.914	0.877	5.537			52.60
	Calculated			33,139		10.61	9.07	108.13	20.55		403.51	538.29		0.498	4.827	68.8		40.22
Milk	Experimental	8,233.9	13.08	8,015	1,089	2.49	12.72	9.01	106.54	88.57	257.14	147.71	57.415	10.539	8.176			577.98
	Calculated			14,494		1.85	12.46	6.74	67.38		290.40	381.15		10.090	7.750	16.3		453.75
Fats*	Experimental	822.4	82.92	12,902	1,083						5.85	660.51	11.572	0.204	0.028			4.0
	Calculated			12,516							3.03	743.07		0.047	0.153	0.7		4.825
Cereals, sugars, syrups	Experimental	2,920.3	84.35			6.86	3.51	58.48			270.98	7.31	112.269	1.929	4.624		19.44	2,053.27
	Calculated			105		5.86	4.34	58.55			210.29	73.18		0.881	2.539	49.7		1,919.07
Vegetables, fruits	Experimental	6,151.1	16.41	121,246	121,246	3.50	2.71	32.90	965.71	388.89	90.44	18.49	52.872	1.585	2.087		37.03	810.56
	Calculated			76,189	76,189	5.10	4.08	42.32	1,029.41		90.07	14.38		1.254	2.275	43.1		793.84
Total for week	Experimental	20,979.20		167,903	130,688	19.04	26.70	231,42	1,072.25	477.46	1,102.98	1,513.59	282.042	15.134	20.452		56.47	3,498.41
	Calculated			136,443		23.42	29.95	215.74	1,117.34		997.30	1,750.07		12.769	17.544	178.7		3,211.75
Av. per day	Experimental	2,999.0		23,987	18,770	2.72	3.81	33.06	153.18	69.49	157.57	216.23	40.292	2.162	2.922	25.5	8.07	499.77

* Includes cream and ice cream.

TABLE 3

Vitamin content and proximate analysis of food served per man per week

FOOD CLASSIFICATION	WEIGHT*	DRY MATTER	VITAMIN A		THIAMIN	RIBOFLAVIN	NIACIN	ASCORBIC ACID		CONSTITUENTS OF DRY MATTER					CARBOHYDRATES		FUEL VALUE
			Total	From carotene				Total	Reduced	Protein	Ether extract	Total ash	Calcium	Phosphorus	Crude fiber	Sugars and starch	
	gm.	%	*I.U.*	*I.U.*	*mg.*	*mg.*	*mg.*	*mg.*	*mg.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*calories*
Meat, fish, poultry, eggs**	Av.																
	2,226.5	44.70	27,385	6,843	6.07	7.53	86.88			440.56	352.72	44.801	0.647	4.386		119.51	5,414.76
Milk	6,827.3	13.08	7,895	1,073	2.14	10.59	7.71	94.16	81.83	213.22	145.49	47.607	8.739	6.780		459.85	4,001.69
Fats†	458.0		6,865	1,238						2.10	218.42	8.100	0.169	0.034		53.73	2,189.10
Sweets, cereals††	3,874.4	62.13			5.78	4.62	69.47			326.20	29.50	75.321	2.546	5.318	22.65	1,959.23	9,407.22
Vegetables, fruits‡	5,711.9	22.07	115,476	115,476	2.84	3.04	36.06	731.42	475.88	107.85	14.28	68.976	2.256	2.438	32.97	1,018.73	4,634.84
Total for week	19,098.1		157,621	124,630	16.83	25.78	200.12	825.58	557.71	1089.93	760.41	244.80	14.357	18.956	55.62	3,611.05	25,647.61
Av. per 100 cal			611	482	0.065	0.10	0.775	3.20	2.16	4.22	2.94	0.947	0.056	0.073	0.22	13.97	
Av. per day	2,728.3		22,517	17,804	2.40	3.68	28.59	117.94	79.67	155.70	108.63	34.972	2.051	2.708	7.95	515.86	3,692
N.R.C. recommendations (per day)																	
Boys 16–20			6,000		2.0	3.0	20.0	100.0		100.0			1.4				3,800
Adult men			5,000		1.8	2.7	18.0	75.0		70.0			0.8				3,000

* Average edible waste per man per week—1072.3 gm.

** Includes small amounts of cereals used in cooking.

† Includes gravies, salad dressings, cream, ice cream and peanut butter.

†† Includes eggs, milk and fats used in hot breads, cakes and pastries.

‡ Includes milk, sugar and starches used in cooking fruits and vegetables.

TABLE 4

Daily intake compared with standards and other studies

	BASIS	VITAMIN A		THIAMIN	RIBOFLAVIN	NIACIN	ASCORBIC ACID		DRY WEIGHT	PROTEIN	ETHER EXTRACT	TOTAL ASH	CALCIUM	PHOSPHORUS	IRON	CARBOHYDRATE	FUEL VALUE
		Total	From carotene				Total	Reduced									
		I.U.		*mg.*	*mg.*	*mg.*		*mg.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*calories*
Planned for Army (16)		13,500		3.3	2.6	29.5		129.0		128			0.98	1.98	0.024		4,200
N.R.C.:																	
Boys 16–20		6,000		2.0	3.0	20.0		100.0		100			1.4				3,800
Adult men		5,000		1.8	2.7	18.0		75.0		70			0.8				3,000
Naval messes, composite (5)	Analysis			1.7	3.4	27.0			642	103	109	20	1.2	2.6		410	3,033
Kansas Army students (6)	Calculation	11,203		2.8	3.1	25.7		121.1		118			1.32	2.08	0.024		3,318
This study	Analysis	22,517	17,804	2.4	3.7	28.6	117.9	79.7	823	156	109	35	2.05	2.71	0.025	524	3,692

were not exposed to any processing in the kitchen which might affect vitamin content. This would be true for citrus fruits, beverage milk, canned fruits and vegetables, bakery bread, and other items.

Proximate analyses for the food as served are also shown in Table 3, and for raw foodstuffs in Table 2. Our data show that approximately half of the fat in the raw foodstuffs was lost or discarded from the food before it was served. The average fuel value per day of the food served was about 3700 calories, 37 per cent of which was supplied by cereals and desserts, 21 per cent by meats, fish, poultry and eggs, 18 per cent by fruits and vegetables, 15 per cent by beverage milk, and 9 per cent by table fats. The protein distribution was as follows: 40 per cent from meat, fish, poultry, and eggs, 30 per cent from cereals, 20 per cent from beverage milk, and 10 per cent from fruits and vegetables. The losses of calcium and phosphorus in food preparation were small. Sixty per cent of the calcium in the food served came from beverage milk, 18 per cent from cereals, baked goods, and sweets, 16 per cent from fruits and vegetables, and 5 per cent from meat, fish, poultry, and eggs. The bread contained 2 per cent dry milk solids.

Data assembled in Table 4 show a comparison of our findings for the daily intake of each nutrient with accepted standards for nutrition and with results from similar investigations.

SUMMARY

Laboratory tests yielded the following average values for nutrients served per man per day:

Calories	3692
Protein	155.7 gm.
Ether extract	108.6 gm.
Crude fiber	8.0 gm.
Sugars and starches (by calculation)	515.9 gm.
Total ash	35.0 gm.
Calcium	2.1 gm.
Phosphorus	2.7 gm.
Total vitamin A	22,517 I. U.
Vitamin A from carotene	17,804 I.U.
Thiamin	2.4 mg.
Riboflavin	3.7 mg.
Niacin	28.6 mg.
Reduced ascorbic acid	79.7 mg.
Total ascorbic acid	117.9 mg.

Under the conditions of our study, processing in the kitchen caused a loss of less than 10 per cent of the carotene and vitamin A in the raw food. The thiamin loss was approximately 10 per cent and the loss of niacin 13.5 per cent. Loss of riboflavin was within the experimental error. The total loss of total ascorbic acid was 23 per cent. We would expect almost 40 per cent of the total ascorbic acid in the "raw" foods to have been derived from citrus fruits and beverage milk. These foods underwent no processing which should affect total ascorbic acid content; the loss of total ascorbic acid from other fruits and vegetables in the kitchen processing must, accordingly, have been about 40 per cent. Without the large amount of citrus fruit included in the dietary, therefore, the amount of ascorbic acid might very easily have fallen below the N.R.C. standard. Except for the expected decrease in fat after cooking, and a decrease of about 13 per cent in total ash, there were few differences between the proximate analyses on the "raw" foods and the foods as served.

We dare not discount the importance of constantly keeping in mind the need for conservation of nutrients in food preparation. Our study was very reassuring, however, in demonstrating the high level of nutrients which can be attained with wise planning, good equipment, constant care, and expert group feeding management.

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Ascorbic Acid Content of Food Served in a Cooperative Residence Hall for Women[1]

MARY LOU DUNKERLEY and
MARTHA M. KRAMER

Kansas Agricultural Experiment Station, Manhattan

ASCORBIC acid determinations of food served to women in a cooperative residence hall on the Kansas State College campus were made during 6 representative periods of the 1944–45 college year. The first period was begun as early in the fall as possible. Samples were collected in fall, winter, and spring, when food served was thought to be representative of that available at those seasons.

The residence hall housed 137 persons. Two administrative dietitians supervised the food unit, directing 17 senior students who managed the food service as part of their work as majors in the fields of dietetics and institutional management. The requirements of an adequate diet, as recommended by the National Research Council (1), were kept in mind as meals were planned. Food selection was of course affected by the times; for example, fresh fruits were included in the menus as often as possible to conserve sugar and processed foods.

Food preparation and service problems were complex due to inexperience of student workers and difficulties of class schedules. Approved practices of food preparation could not be followed at all times; for instance, vegetables required for dinner in the evening were often prepared early in the day to permit use of student help when available.

Self service was employed over a 30-min. period for breakfast and lunch. Family service was possible for dinner, with one waitress for each 12 to 18 students served.

At each meal, portions of food were obtained in triplicate from regular servers. These portions, considered as representative of those served the students, in size, method of handling, and in unavoidable delay on steam table or serving counter, were weighed, mixed and sampled at once. Samples were covered with a dilute solution of metaphosphoric acid and determinations of ascorbic acid were made, using the method of Bessey and King (2) as modified by Mack and Tressler (3) and as described by Bessey (4). Samples were macerated in a Waring Blendor. Meat and meat products were not assayed, as they were considered to be too low in ascorbic acid to contribute materially to the sum total of this essential in the average daily diet. All foods containing fruits, vegetables, or milk were studied. The results of the ascorbic acid determinations were computed as milligrams per 100 gm. food, as milligrams per serving, and finally as milligrams of ascorbic acid provided per person for each of the 44 days.

There were known variations from the average. Some students received less than average amounts of ascorbic acid because they ate no breakfast. About one tenth of the young women missed breakfast on weekdays and about one third on Sunday. This lowered the total daily ascorbic acid intake for these individuals. Students seldom omitted other meals. A few refused certain items on the menu because of food dislikes, but this was not a large problem. Then there were those who received more than the average amount of ascorbic acid because they desired large or second servings of salads or vegetables when available.

RESULTS

Figures for the amounts of ascorbic acid supplied per person per day were assembled and arranged for comparison (Tables 1 and 2). Typical menus in which average and low amounts of ascorbic acid were provided are shown in Table 2. Some of these menus included no citrus fruits and only small amounts of leafy vegetables.

The average daily amount per person for the 44 days was 70.9 mg. ascorbic acid (Table 1), or slightly more than the N.R.C. recommendation (70.0 mg. per day for the average woman of 56 kg.).

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The ascorbic acid per person per day for 6 periods is shown in Table 3. In Periods I and IV the averages were more than 15 per cent above the suggested amount, and in Period V the margin was half as great,

TABLE 1

Sequential range of ascorbic acid values

DATE	MG.
3–24–45	146.3
1–19–45	122.9
11– 5–44	120.5
1–16–45	116.9
11– 6–44	109.3
3–30–45	103.1
1–17–45	102.9
1–18–45	97.1
11– 2–44	91.2
4–20–45	86.9
11–27–44	84.6
10–31–44	84.5
12– 1–44	77.2
12–17–44	74.7
1–13–45	72.9
4–18–45	72.9
12–21–44	69.6
3–27–45	68.9
11–29–44	67.9
4–23–45	67.2
12–19–44	66.0
4–19–45	64.8
12–18–44	64.3
12– 2–44	64.2
12–20–44	62.2
3–26–45	59.8
11– 4–44	59.6
11– 3–44	58.1
1–11–45	58.1
1–12–45	57.6
12–16–44	57.1
3–28–45	56.9
4–22–45	56.8
11–30–44	53.5
3–29–45	52.8
1–15–45	52.5
4–17–45	52.0
11–28–44	51.9
1–14–45	50.9
11– 1–44	49.9
12–15–44	40.8
3–25–45	39.4
4–21–45	30.9
12– 3–44	24.5
Average for 44 days	70.9

but in the other periods the averages were more than 10 per cent below 70.0 mg.

Only for 16 days was ascorbic acid provided in greater amount than that recommended. The average for these 16 days was high, 97.1 mg. per person, but for the remaining 28 days the average was only

TABLE 2

Ascorbic acid content of the diet, per person per day

RESULTS FOR TYPICAL DAYS	WT. PER SERVING (E.P.)	ASCORBIC ACID PER SERVING
	gm.	*mg.*
Saturday, 1–13–45		
Whole tangerine	88.4	27.7
Assorted cereals		
Toast, butter		
Coffee, milk, cocoa		
Baked beans, tomato sauce	134.0	3.6
Boston brown bread, butter		
Mixed vegetable salad	46.1	4.1
Tokay grapes	100.2	5.7
Milk		
Roast leg of lamb		
Scalloped potatoes	112.0	6.3
Buttered green beans	67.6	6.7
Cabbage salad, with parsley	38.4	15.7
Whole wheat bread, butter		
Peanut brittle blanc mange		
Milk for day		3.1
Total for day		72.9
Tuesday, 11–28–44		
Stewed prunes, orange slices	123.6	2.0
Muffins, butter, jelly		
Assorted cereals		
Coffee, milk, cocoa		
Sausage, baked with acorn squash	63.2	7.1
Mixed vegetable salad	52.0	2.8
French dressing		
Bread, butter		
Lime pudding	83.5	15.3
Milk		
Swiss steak, gravy		
Mashed potatoes	130.6	4.7
Buttered fresh spinach	76.0	11.5
Banana nut salad	57.6	5.2
Head lettuce	15.3	0.3
Raisin bread, butter		
Spice cake		
Milk for day		3.0
Total for day		51.9
Thursday, 1–18–45		
Whole banana	74.1	7.0
Cinnamon toast		
Assorted cereals		
Coffee, milk, cocoa		
Frankfurters, buns		
Vegetable salad	62.4	8.9
Baked lemon sponge pudding	69.8	2.9

TABLE 2—*Continued*

RESULTS FOR TYPICAL DAYS	WT. PER SERVING (E.P.)	ASCORBIC ACID PER SERVING
	gm.	*mg.*
Minute steak		
Buttered broccoli	61.8	50.6
Creamed potatoes	83.1	5.1
Relishes: olives		
radishes	11.0	1.8
cauliflower	25.1	15.9
Cracked wheat bread, butter		
Baked apple, cream	93.9	1.8
Milk for day		3.1
Total for day		97.1

fruit or servings of vegetables of good ascorbic acid value. Usually citrus fruit was served for breakfast and broccoli, Brussels sprouts or raw cabbage at another meal. In some cases there were generous portions of both types of food, which brought totals for those days to high levels.

Citrus fruits supplied well over one third the total ascorbic acid in the diets, other fruits accounting for less than one tenth the total. In Period I when the proportion of ascorbic acid from citrus fruits was lowest, an average of about one half serving per day of this class of foods was provided, but in January twice as many of such servings appeared. More varieties of fruits were available in the fall and citrus fruits were served more often in later periods when other fresh fruits were not plentiful. By April citrus fruits were more expensive and less desirable, therefore less freely used. During the 44 experimental

TABLE 3

Average ascorbic acid supplied per person per day for six periods

	TOTAL PER DAY	CITRUS FRUITS		OTHER FRUITS		TOMATOES		LEAFY VEGETABLES		POTATOES		OTHER VEGETABLES		MILK	
	mg.	*mg.*	%	*mg.*	%	*mg.*	%	*mg.*	%	*mg.*	%	*mg.*	%	*mg.*	%
I Oct. 31–Nov. 6	81.9	18.5	22.6	8.8	10.7	2.7	3.2	27.2	33.3	13.3	16.3	8.6	10.5	2.8	3.4
II Nov. 27–Dec. 3	60.5	25.0	41.3	7.9	13.0	2.3	3.8	7.3	12.2	7.0	11.5	8.0	13.3	3.0	4.9
III Dec. 15–Dec. 21	62.1	22.3	35.9	4.8	7.8	3.8	6.1	13.5	21.8	7.1	11.4	8.2	13.2	2.4	3.8
IV Jan. 11–Jan. 19	81.2	34.3	42.2	8.9	11.0	4.0	4.8	12.9	16.0	7.3	9.0	10.7	13.2	3.1	3.8
V Mar. 24–Mar. 30	75.3	40.3	53.5	4.7	6.3	11.0	14.7	5.8	7.7	6.6	8.7	4.3	5.7	2.6	3.4
VI Apr. 17–Apr. 23	61.6	16.4	26.6	2.0	3.3	6.5	10.6	21.1	34.2	4.6	7.5	8.1	13.1	2.9	4.7
Averages for 44 days:	70.9	26.5	37.4	6.3	8.9	5.0	7.1	14.6	20.5	7.6	10.7	8.1	11.4	2.8	4.0

56.6 mg. ascorbic acid. On the day when the lowest amount of ascorbic acid was supplied, Sunday, only two meals were served in the dining hall. The students may have had an evening meal elsewhere which provided some ascorbic acid; however, it is possible but not probable that the food would provide sufficient ascorbic acid to bring the total for the day up to that recommended. On another Sunday (November 5) the food provided 120.5 mg. ascorbic acid, showing that a generous amount may be provided in only two meals. However, students who ate no breakfast on that day received but 65.4 mg. ascorbic acid.

DISCUSSION

In a study of the nutritive value of food served in some large Navy messes, McCay *et al.* (5) reported similar variations in daily ascorbic acid totals, ranging from 29 to 124 mg. Individual foods were not examined. Instead, samples for a whole meal were combined before the determinations were made. In the present investigation, the separate sources of ascorbic acid were tabulated. For the 16 days when as much as 70 mg. ascorbic acid was supplied, the menus included one or more servings of citrus days, servings of citrus fruits were on the menu only about half as often as servings of other fruits, including all fresh, dried, frozen, and canned products. In spite of this, the citrus fruits furnished more than four times the quantity of ascorbic acid supplied by other fruits.

This experiment was started too late to include the fresh home-grown tomatoes usually served freely in early fall in this area. The fresh tomatoes finally used had undergone relatively long storage and handling periods, which accounted for the low ascorbic acid content. The use of tomatoes was also limited, since fresh tomatoes shipped in from Mexico and California were costly and processed tomatoes were rationed. A small accumulation of canned tomatoes permitted freer use in Periods V and VI. The average ascorbic acid from tomatoes for all periods was only 5 mg. per day. During the 44 days, this food appeared on the menu only 14 times as a full serving. Tomatoes as a whole afforded no large amounts of ascorbic acid in the periods studied, but under normal conditions canned tomatoes, tomato juice and purée would be extensively used in various ways during these seasons.

Leafy vegetables were good sources of ascorbic acid, one fifth of the total being supplied largely by broccoli, Brussels sprouts, and raw cabbage. Compared with other leafy vegetables, lettuce provided small amounts of ascorbic acid, never more than 3.1 mg. per serving. Leafy vegetables were especially prominent sources of ascorbic acid in the first period. An explanation is that during this period the majority of the leafy vegetables were of the genus *Brassica* (cabbage, broccoli, and Brussels sprouts), whereas in the next period the genus *Brassica* appeared only once when raw cabbage was served as part of a mixed vegetable salad.

Good-sized portions of potatoes, cooked in ways most apt to conserve ascorbic acid, were sometimes offered, but this vegetable never supplied sufficient of the vitamin to approach even half that recommended for one day's intake. Seemingly these students would not consume sufficient potatoes to furnish a major portion of the ascorbic acid for the day.

The average consumption of milk per student per day varied from 481.1 gm. in Period III to 612.2 gm. in Period IV. Samples of the milk served to the students as a beverage were taken for analysis, also samples of prepared products such as hot cocoa. Based on ascorbic acid determinations, it was estimated that the average student received 2.4 to 3.1 mg. ascorbic acid daily from milk or about 4 per cent of the day's total.

In the last few years, the American public has been supplied with practical suggestions for food selection. For example, in the National Wartime Food Guide (6) in which the "basic 7" food groups are explained, it is suggested that, "In planning your three meals every day try to use at least one serving of some food from each of the seven groups, not leaving out any single group." Group two, including oranges, tomatoes, grapefruit, cabbage, salad greens and so on, would seem to be the one relied upon for ascorbic acid in the diet. Menus for the 44 experimental days were checked against the lists in group two. On only 5 days did they lack a full serving of food from this group. Four of these were days when the ascorbic acid content of the diet was low, but on the fifth day the ascorbic acid was high, 109.3 mg., much of which was provided by broccoli. Group two lists cabbage, Brussels sprouts, and cauliflower, but not broccoli, which is in group one. The determinations showed that for 28 days of the experimental period ascorbic acid was provided in amounts less than the 70 mg. recommended, while according to the check described above only 5 days would have shown such a deficit. It appears that those unversed in supplying ascorbic acid by means of the diet and who follow the practical suggestion offered in the Food Guide, namely, the daily use of one serving of a food from group two, might thereby receive inadequate amounts of ascorbic acid.

Costs of various foods sufficient to provide 100 mg. ascorbic acid were calculated from the records. These figures were affected by changes in market price and also by changes in quality which in turn affected the ascorbic acid content. For example, the price of cabbage in the fall was about half that in January. Further, the fall cabbage was richer in ascorbic acid. On the other hand, the price of broccoli was high in the first period and lower in January, but the ascorbic acid content remained high. So it happened that in January a given amount of ascorbic acid could be obtained from either cabbage (served raw) or broccoli at the same cost. Raw cabbage was a cheaper source of ascorbic acid in April (2 cents per 100 mg.) when the new crop came in.

Methods of preparing and handling various foods also affected the ascorbic acid provided. Potatoes were a cheaper source of ascorbic acid (4 cents per 100 mg. in the fall) when baked rather than mashed, in spite of the fact that the price of potatoes suitable for baking was a little higher. Grapefruit halves, as served for breakfast, were a less expensive source than grapefruit sections prepared for salad, for in the latter there was unavoidable waste in preparation and also decreased ascorbic acid content.

Raw cabbage, in fall and spring, was the cheapest source of ascorbic acid (2 cents per 100 mg.). At favorable seasons, baked potato and broccoli supplied 100 mg. ascorbic acid for 4 to 5 cents. Grapefruit and oranges were the most economical fruits used for this purpose, for in season they provided the vitamin at 4 to 5 cents per 100 mg.

In institutional food units many complications arise which affect the ascorbic acid content of the food served. Schedules for preparation and service of foods, to make best use of labor, may not be best for conserving ascorbic acid. Organizations employing student labor are particularly handicapped, for they are obliged to use help when available. These situations affect the ascorbic acid content of the food served, even though meals are planned by and prepared under the direction of administrative dietitians. Still further complications occur when the organization proposes to offer experience to students in menu making and in preparing and serving food. This makes it doubly important to use foods which unquestionably will contribute generously to the ascorbic acid content of the diet.

SUMMARY

The ascorbic acid content of food served to students in a cooperative residence hall for women at Kansas State College was determined in the fall, winter and spring of the 1944–45 college year. During 6 representative periods, totaling 44 days, food served to the students was weighed and sampled for ascorbic acid determinations. Calculations were made to show milligrams of ascorbic acid per 100

gm. and per serving of food. The total ascorbic acid provided per person per day, for each of the experimental days, was calculated.

The ascorbic acid averaged 70.9 mg. per person per day, and ranged from 24.5 to 146.3 mg. In two periods the ascorbic acid supplied was about 15 per cent more than the recommended 70.0 mg. daily. However, during three periods the averages were about 10 per cent below this.

In order to account for the wide variations, the daily menus were analyzed as to source and distribution of ascorbic acid. More than one third the total ascorbic acid was supplied by citrus fruits; leafy vegetables were the next best source, supplying more than one fifth the total. Vegetables of the cabbage family were particularly useful. In one period, 27.2 mg. ascorbic acid per person per day was obtained from leafy vegetables.

There was wide variation in the cost of ascorbic acid supplied by different foods. Raw cabbage, broccoli, certain servings of potato, and citrus fruits were the cheapest sources.

In periods when generous portions of either citrus fruits or leafy vegetables of good ascorbic acid content were served, the recommended amounts of ascorbic acid were provided.

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THE DIETITIAN WITH UNRRA

APO 757 UNRRA
c/o Postmaster, New York
October 23, 1945

UNRRA headquarters in the American Zone, Germany, is in Weisbaden and is divided into two districts, Eastern and Western. I am located in the Eastern District Headquarters in Munich. We have 80 teams that take care of around 90 camps. A team is composed of from 5 to 45 members and may take care of one camp, composed of from 350 to 3000 persons, or 10 camps composed of 20,000 persons. In our area there are some 250,000 displaced persons. The Western District is much smaller.

The district is divided into 3 camps and a demonstration center, and I have a nutritionist in each one. Two of the girls are from the states, one is a Canadian and the other an English girl. I feel very fortunate in having them, especially since UNRRA did not recruit nutritionists, only nursing officers. The duties of the nutritionists will be to aid the messing officers in the teams to provide the best possible food with the rations allotted. All rations are planned by and distributed through the military government. I feel sure you will be interested in the daily rations allotted to each person in a camp: Meat, fish or cheese 3 oz., powdered egg ⅓ oz., powdered milk ½ oz., evaporated milk 1 oz., biscuits 2 oz., pulses 1 oz., whole grain cereal 1 oz., flour 10 oz., potatoes 8 oz., fat (mostly lard) 1 oz., sugar 1 oz., fresh vegetables and fruit 6 oz. when available.

There are small amounts of dried fruits, chocolates and jam for the children. Each displaced person is allotted two Red Cross packages a month (they may be British, French, American, etc.). The remainder of the rations are provided from German sources or purchased from the various countries who have food. (This food is stored in military government storehouses.) Each person is allotted 2300 calories a day, and since there are usually small children in the camps who do not eat that many calories, it means the workers, adolescents, nursing or pregnant women are allotted more food.

I have taken a couple of trips since I last wrote. The first was to Salzburg, Austria, and the scenery was magnificent. It was so beautiful I completely forgot how cold I was. We took the trip in a cold rain and were traveling in a jeep. From Salzburg we went to Berchtesgaden 12 miles away where Hitler had his home and his hideout known as the Eagle's Nest. We did not get to see the Eagle's Nest as it was at the tip of the mountain, and it was not possible to get there in 6 feet of snow. The barracks where the S. S. troops were housed and the home of Hitler were heavily bombed. The village of Berchtesgaden is beautiful and typically Bavarian. The countryside is so quiet and peaceful you wonder how anyone could have broken into the privacy of the spot.—*Excerpts from a letter from Ruth Kahn, member of the American Dietetic Association, now overseas with UNRRA.*

Money—The Power Supply for Food Service

MARGARET E. TERRELL

Director, Residence and Dining Halls, University of Washington, Seattle, and Chairman, Professional Education Section, American Dietetic Association

MONEY provides the power in business, as electricity furnishes energy to the machines of industry. A mighty power project has breath-taking grandeur about it. One is awed by the great torrents of water that thunder over a dam. Dancing spray winks back rainbows in the sun. A glistening reservoir of potential energy forms a beautiful lake, as an insurance against future need. A trim power plant sends harnessed lightning to industry to illuminate workshops and set in motion many pieces of fast-moving, labor-saving equipment. Man's ingenuity has hitched up power to increase the effectiveness of human endeavor.

The torrents of supplies and services that pour over the turbines of business enterprise generate a power that is expressed in dollars rather than kilowatts. Its force may be used effectively or dissipated through unproductive use and faulty connections. Skilful manipulation of costs is necessary to obtain full satisfaction of money value. Just as there are those who leave idle machines running and use outmoded fixtures that dim the light, there are dietitians responsible for the expenditure of large sums of money who ignore costs.

In planning for the work of an institution, it is essential that the budget be large enough to cover requirements. If the food department is part of an organization that controls the budget, then convincing proof must be presented in order to ensure adequate funds to create an even flow of service of an accepted standard. No part of institution food service operates by perpetual motion. Power in terms of money must come from somewhere, be it an individual, city, state, or national organization. Any organization must rely for a statement of needs on those directly in charge and most likely to be informed. The dietitian should know how much power is needed in the food department and be ready to ask for the current required to do satisfactory work.

A comprehensive knowledge of the work and the elements that influence cost is needed by the planner. Schools and hospitals have lost much-needed personnel to industry because wages were not competitive. Instances are common in many areas where untrained people are earning as much as professional personnel. Food costs, at times, have been too high because menus were written as prescriptions and without sufficient consideration of relative costs of equivalents. Managers give much thought to the planning of a new institution in the hope that it will prove to be the most modern and efficient one yet built, but too frequently their planning stops at this point and they are confused when questioned about reserves for depreciation. Such reserves, based on the reasonable life expectancy of equipment, would make funds available to keep the institution efficient and up to date indefinitely. These are typical points meriting consideration when making a blueprint for financial operation.

PLANNING A BUDGET

The budget is the financial plan for the work of a department. Dietitians who are disappointed because they are not consulted about the design of the kitchen should feel more alarmed when they are asked to operate a department without a voice in the budget making. Inadequate amounts to do the job result in ineffectiveness. To overlook or underestimate normal expenditures and assume more costs than the income will carry is quite likely to blow a fuse in the organization. As a result, proper support from the administration may lapse into lack of confidence and carping criticisms.

Making a budget calls for sound bases upon which to estimate expenditures. Accepted policies as well as records of costs must be clearly understood. Policies are far-reaching in their effect on cost. One organization, for example, may be resolved to provide the best food and service possible for the income. The next may wish to maintain food service compatible with good standards but show as great profit as possible. A third may set up standards and insist

that they be met, even if the charges must be adjusted or the department subsidized. Dreams of progress, to be realized, must be woven into the plan. By viewing all costs at one time it is possible to arrive at allocations that will contribute to the best development of the institution as a whole.

There are general patterns for expenses in food departments, but rarely are allocations identical, even in units of the same type. Standards and skills of individual operators, the demands of the clientele, the advantages and disadvantages of the different situations cause them to vary. Nevertheless, averages may be used as a gage for challenging costs that are out of line. The budget for a particular unit should be regarded as an individual plan and all of its peculiarities must be met. One institution may have a high fuel bill and a low labor cost, and one nearby may have the reverse. Sound reasons will substantiate deviations from average unless such deviations indicate bad practice that should be corrected. The dietitian should make sure that the administration understands and approves the irregularities in her department in order to retain confident support.

There is a tendency to plan the budget to fit the income. If the income is absolutely fixed, this may be necessary. Usually it is better to consider income and costs in conjunction with each other. It is sometimes necessary to adjust both in order to arrive at suitable proportions.

It is understandable that a clientele demanding personal service, fancy food, and elaborate trimmings would be willing to pay more than would another group satisfied with minimum essentials. Yet instances have been known in which dissatisfaction arose because patrons were served low-cost food when they could afford better. Those in charge were incapable of sizing up the situation, of remedying it, and charging accordingly. On the other hand, difficulties have also resulted because the manager could not adjust her elaborate standards to the patrons' restricted ability to pay. She provided excellent food, service and surroundings, but failed for lack of patrons who could afford to pay the price.

An incident that illustrates the foregoing occurred in a dining room equipped to give a high grade of service to a clientele of ample means. A modestly dressed family came into the restaurant, was seated and presented with a menu. After scanning the items, the father and mother exchanged worried and highly communicative glances. Clearly the prices were out of their range. Quietly they arose and guided three reluctant children toward the exit. Their path was intercepted by an alert hostess, to whom the father explained: "Your dining room is very attractive and the menu sounds mighty good. Our friends told us this was the place to eat, but we can't afford it." The hostess did not bristle in defense of the prices; instead, she suggested, "Well, wouldn't you like to try our Little Red Hens? We serve them at the front counter. We also have double-dip ice cream cones." A hot chicken "salad" turnover, served hamburger fashion, and a large ice cream cone made a satisfying lunch which cost but 20 cents per person, and they went away contented. These foods required no dishes, no napery, and little labor, and the raw food cost percentage could claim the major part of the sales price.

A survey of the cost allocation in competitive institutions in each locale will provide a significant check against the budget figures. The government economic surveys will help explain variations in costs in units of a given type located in different sections of the United States. This was clearly illustrated by the range in commissioning rates throughout the country for schools messing military men according to Army standards, and guided by the Master Menu. Here, food and service were kept as nearly uniform as direction and inspection could make them. Differences existed in rates based on necessary costs which amounted to as much as 30 or 40 cents per man per day.

The main divisions of expenditures for a food department are usually food, labor, operating costs, and profit. Within such classification should be listed every charge made against the income. Every supply used and every service performed for which payment is made should be included. Detailed listing of costs greatly aids in giving a clear picture of the business.

The experienced administrator can closely approximate the necessary expenses. Naturally the calculations would be based on her own experience or her knowledge of averages. At best, such figures can only be estimates, subject to the vagrancies in actual practice. The surest basis for the budget is a carefully kept record of accounts—the meter-reading of the power used. This, combined with a knowledge of the standards afforded in the operation, makes it possible to set budget allowances with wise discrimination.

CONTROLLING THE COST

Accounts tend to reflect whether an institution can afford a dietitian and how much it can afford to pay her. The question often arises, "Can she write better menus, buy more skilfully, and maintain better standards than an experienced cook?" The cook, it is reasoned, might serve as a working manager as well as cook and thus save one salary. This poser has often been parried by the statement, "But the dietitian's knowledge of diet and disease enables her to do essential therapeutic work," to which the logical rebuttal is, "In proportion to the

special diets required, how much is an institution justified in paying for the services of a dietitian?"

The low level of dietitians' salaries has been a cause for professional concern. Perhaps the answer is that the dietitian has not presented sufficiently convincing evidence of her worth. Those who must meet a budget know the meaning of dollars and cents. Accounts tend to show whether the dietitian controls her department or just keeps it running. Authorities have stated that from 75 to 95 per cent of the work of the majority of dietitians is administrative; this, however, is a fact not generally recognized. As an administrator she should be able to control her department and in proportion to her knowledge, vision, and skill, keep it operating successfully. Very frequently, by clever control, she can not only raise standards but save enough money to justify an excellent salary in return for her services.

Control means directing expenditures into the right path wherever there are possibilities for variation. This requires continual calculation of ultimate worth as well as immediate outlay. It is not a question of how much is paid per unit, but of value received for the total amount paid. For example, labor rates can be so low that experienced workers are not attracted. Those who apply for employment on a low wage level may be so slow, dull, and disinterested that two will be required to do a job which one skilled person could accomplish. On the other hand, a fast worker may have low standards and waste good supplies or produce poor products. An efficient and satisfied employee who receives a

TABLE 1

*Price Per Pound of Selected Canned Food—Classified by Grade**

COMMODITY	NO. OF CANS TESTED	GRADE	PRICE, CENTS PER POUND (NET)															
			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Over 20¢
Corn, cream style	244	A			1		10	10	19		5		1		1			
		B			10	3	26	11	27	1	6		3		3			
		C		1	26	7	20	7	23		3		6					
		SS		3	10	1	1											
Peaches, clingstone	179	A				1	2	1	5	7	5	5	7			1		
		B			4	13	22	4	8	6	1	4	1					
		C		4	28	14	15	9	3	1								
		SS		1		1		1	1									
Tomatoes	220	A		1	4	2	3	3	5	10								
		B	1	6	35	10	20	11	3	21		2						
		C	1	6	46	7	6	3	1	5								
		SS	1		2	3	1	1										
Bartlett pears	27	A						1	1	4	1				1		1	
		B					1	1	1	3			1				1	
		C			1	1	2			3		1			1		1	
		SS																
Peas	68	A					1	1			1	1						
		B					1		4	2	7	3	3	2	4		1	
		C				6	2	1	4		2	1	6	2	1		1	2
		SS																
Lima beans	32	A			1							2	1	1				
		B		1	1	1		3	2		4	2	2	1	1			
		C			2		1	2	1		1		1	1				
		SS																
Green and wax beans	23	A							1						1			
		B			1		1	2	3	5	1	2	3	1	2	1		1
		C		1	5			3	1	1					1			
		SS		1	1				1									

* H. A. Mereness: The Consumer, Consumer's Division, NRA, Vol. I., No. 2, Nov. 1, 1935, p. 2.
"All samples were graded by individuals trained in the use of the USDA grading system."

higher wage and thus remains on the job may be the most satisfactory in the long run from a financial point of view when one considers either total payroll or cost per output.

for apples, for example, to vary 10 per cent in weight per box. Instances have been known where the cost per usable pound was the same for fancy and C grade but this, of course, is not always true. Experienced

TABLE 2

Average waste per day in dining service for 260 men

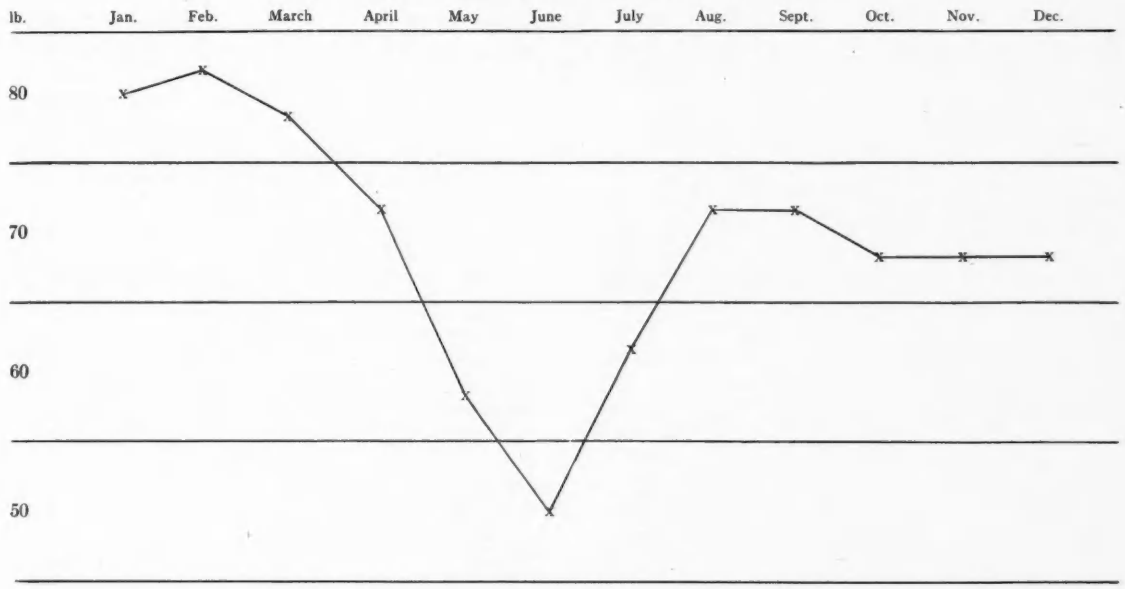

TABLE 3

Average cost per meal for food in student health center

	$.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20	.21	.22	.23	.24
Mar.	•														
Apr.				•											
May	•														
June									•						
July											•				
Aug.									•						
Sept.												•			
Oct.							•								
Nov.									•						
Dec.									•						
Jan.						•									
Feb.										•					

Note: The average food cost decreased as the number served increased.

There are many points in the purchasing and handling of food which require careful control to ensure good quality and economy. Table 1 gives convincing evidence of the range of values available in the selection of canned food alone. Wise selection of most foods requires an appreciation of quality, and alertness in securing the best value available.

Variation in value for quantity and grade per market unit shows a similar range. It is not unusual

buyers have found that the surest measure for comparison of market values is the cost per pound of edible material.

Value may be lost at numerous points after a skilful marketer has procured the supplies. The shipping clerk and the delivery man, the storekeeper, the cook and the pantry girl, the serving woman and the kitchen supervisor, may each shave off a slice that spells loss. Careless handling, dishonesty,

ignorance, poor standards, laziness, and generosity with friends, are common causes of economic leaks in the handling of food. Many losses may be prevented at strategic spots in the organization. A receiving check, inventory and issuing system, will help to control the store of supplies and ensure that material ordered is received and used. Adequate employee direction and supervision will help prevent loss through wasteful methods, loitering, and carelessness. Good preparation and service standards and methods stop such leaks as those caused by inferior products, irregular portions, and discarded leftovers.

TABLE 4

A yearly profit and loss statement in a residence hall for women

Profit and Loss Statement
Residence Halls
April 1941–April 1942

Income			$112,364.18
Cost of food:			
Inventory April 1, 1941	$1,935.12		
Purchases	28,581.11		
	30,516.23		
Inventory April 1, 1942	2,952.02	24.53%	
			27,564.21
Gross Profit			$84,799.97
Operating expenses:			
Cleaning supplies	577.89	.51	
Dept. res.-linen	1,288.10	1.15	
Dept. res.-furniture and equipment	5,125.34	4.56	
Fuel for cooking	161.46	.14	
Heat	5,970.54	5.31	
Insurance	255.63	.23	
Laundry	2,905.20	2.59	
Light and power	3,468.00	3.09	
Paper supplies	759.14	.68	
Press	57.73	.05	
Redemption fund	21,780.00	19.38	
Repair and renewal	2,244.15	2.00	
Salaries, social direction	5,179.26	4.61	
Salaries, supervision	6,266.97	5.58	
Wages	19,529.31	17.38	
Sundry supplies	321.94	.29	
Telephone	1,860.00	1.65	
Water	720.00	.64	78,470.66
Net profit			$6,329.31

MEASURE PROGRESS

When a good job is done, it is very important to make this fact known. Giving credit to the person responsible increases his satisfaction and furthers his ability, inspires confidence in those for whom the work was done, and furnishes a stimulus and guide for the future performance of all concerned. The sense of "having arrived" gives one confidence in one's ability and encouragement to attempt new goals. A manager may be very successful in securing good results but may feel baffled and uncertain about the extent of the success. This situation tends to stifle progress. On the other hand, an operator lacking in experience and standards but possessing a very optimistic attitude may feel that work is progressing nicely when in reality certain phases are approaching danger points.

There are many reliable indicators that portray the degrees of progress. Cost analyses and profit and loss statements not only show whether the unit is keeping within its budget, but also give a picture of the expense proportions. Emergencies, lack of supervision, and irregular situations may cause certain costs to soar out of line. Financial statements or cost charts will show where control is most needed. Charts indicating level of costs over a period of time, cost per person served, increase in patronage, average amount of waste, comparative cost of different food items and methods of preparation are typical aids in financial management. Figures are often more significant when individual items are pulled out and listed to show developments over a period of time (such as those given in Tables 2–4).

Worthy and attainable goals serve as a challenge, and when realized furnish the rich satisfaction of a victory. According to psychologists every person should have his particular victories in order to have a normal personality and live a happy life. Professional progress and personal success as goals depend indirectly upon the efficient use of power. Every dietitian should therefore ask for enough current, guard its use, and periodically read the meter.

Home Economists as Journalists

There is a medium for community education in nutrition which is so obvious that it may be overlooked—this powerful teacher is the daily press. Crowded as its pages are with the reiteration of human events, the daily paper is sadly lacking in sound informative material on nutrition and allied subjects.

The thing we must ask ourselves now is, "Are we qualified as journalists?" Have we the proper background for writing? Has our training been specialized to the point of making our subject too technical to be interesting to the lay reader?

If, as a group, we feel unqualified to interpret our subject of nutrition in a practical way, should we not, then, look to a means of correcting this flaw in our training? Perhaps the answer lies in improving the college curriculum for our profession. Since few dietitians are not called upon at some time in their careers to present nutrition information, it would seem advisable to have them well versed, not only in their subject, but also in the most effective methods of presentation.—*From the Bulletin of the Missouri Dietetic Association.*

Dietary Study of Cornell University Women[1]

CHARLOTTE M. YOUNG

School of Nutrition and State College of Home Economics, Cornell University, Ithaca, New York

THE nutrition program for students at Cornell University, the first steps of which were the establishment of a nutrition counseling service and a Special Diet Table, has been described in a previous paper.[2] The present paper reports the results of an investigation conducted at Cornell to gather specific facts relative to the dietary habits of university students, undertaken during the academic year, 1942–43.

METHOD

Originally, a study was to be made of the dietary habits of both men and women students. However, with the depletion of the usual male civilian student body as a result of war demands, attention was concentrated on obtaining as representative a picture as possible of the nutritive value of the food intake and of the eating habits of women students.

Groups of approximately 10 students each were observed in studying the eating habits of women living under the following five different circumstances: in a sorority house; in private homes where students work for room and board; in different campus-controlled cottages with meals served in a central dormitory; in a supervised dormitory; and in a graduate house where students are free to choose their own eating places. The groups studied were representative as to age, college, and college year. Students were contacted individually, first by personal letter, then by individual conference at which time careful instructions were given. Each student was asked to keep a careful record of her food intake, both at and between meals, for 7 consecutive days, February 14–21, 1943 (just before meat rationing) and again in the spring, May 9–15, 1943 (after meat rationing went into effect). Stress was put on the necessity for accuracy and the fact that none of the information would be construed as reflecting discredit on the student. Since the investigator was not a teacher, and since by far the greater number of students had had no training in nutrition, it was thought that the records would be relatively unbiased by student-teacher relationship or by the knowledge of what one was "supposed to eat." Examination of the records indicates that the students were both frank and conscientious in preparing their compilations.

The records were analyzed in three ways. First, a weekly average of the intake of specific nutrients was calculated for each student and a composite average for each group, using the tables of Taylor, and Bowes and Church. These averages in turn were compared with the National Research Council recommended daily allowances for both a moderately active woman and a 16 to 20-year-old girl. The individual figures were also scrutinized in relationship to minimum requirements when these were arbitrarily taken as two thirds of the N.R.C. allowances. Winter and spring records were viewed also for differences which might be related to rationing or possible seasonal changes. In the second place, the records were analyzed for frequency of occurrence of certain foods commonly listed in dietary patterns. The final type of analysis had to do more specifically with eating habits.

RESULTS

Specific Nutrients. Table 1 presents, for each group, the range and average intakes of specific nutrients based on 1-week winter food records (February 14–21) and a comparison of these figures with the N.R.C. recommended allowances; Table 2 gives the same information for a week in spring (May 9–15).

An examination of individual weekly averages showed that for all nutrients the intakes of all women are within the figures which we used as minimum requirements, *i.e.*, two thirds of the N.R.C. allowances. On the whole, one is impressed with the evident adequacies of the diets as indicated by these records, rather than their deficiencies. Protein, iron, and thiamin values are slightly low, but since some investigators consider the N.R.C. standards some-

[1] This study is part of a program of the School of Nutrition which is being carried out with the cooperation of the Department of Clinical and Preventive Medicine and the New York State College of Home Economics. Expenses for this program were defrayed by special grants to the School of Nutrition from Corn Products Refining Co., the Commercial Solvents Corp., and the Consolidated Edison Co. of New York, Inc.

[2] J. Am. Dietet. A. 20: 590, 1944.

what high, at least for iron and thiamin, we feel that there is no cause for alarm. In all instances caloric intakes seem to be somewhat low. Probably this is not a true deficit, since errors tend to occur in the direction of underestimation due to the fact that fat and board group showed satisfactory intakes of all nutrients. It is apparent that the opportunity to be well fed is available to all these groups. In the majority of instances the opportunity is well utilized, but there are still individual problems.

TABLE 1

Range and average daily intakes of specific nutrients based on one-week records (February 14–21, 1943, before meat rationing)

GROUP	NO. SUBJ.	AV. AGE	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMIN	RIBOFLAVIN	VITAMIN C
				gm.	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*
Sorority	8	20.5	1558–2540	49.5–75.8	.524–1.262	8.01–11.22	3,385–10,663	.839–1.199	1.261–2.517	78–173
			1810	58.7	.826	9.48	5351	.967	1.679	108
Room and board	10	19.8	2102–2665	64.4–104.5	.600–2.072	12.32–18.52	3,618–11,952	.863–1.638	1.611–4.244	78–248
			2394	78.5	1.113	13.85	7336	1.185	2.460	130
Cottage	11	20.5	1710–2513	60.9–94.0	.568–1.361	11.53–19.51	4,792–16,940	.933–1.436	1.340–3.137	58–145
			2218	76.3	1.072	13.97	10,798	1.242	2.246	113
Dormitory	7	21.0	1939–2806	60.6–88.1	.868–1.364	9.47–15.57	2,984–15,736	.970–1.363	1.759–2.719	33–181
			2268	76.3	1.199	13.28	8,935	1.232	2.355	107
Graduate house	7	21.0	1957–2561	56.2–83.0	.860–1.326	8.78–14.95	5,593–11,536	.902–1.553	1.757–2.976	82–185
			2194	68.7	1.063	11.03	6,981	1.168	2.176	148
Recommended Daily Allowances, National Research Council										
Moderately active woman			2500	60	.8	12	5000	1.5	2.2	70
Girl 16–20 yr			2400	75	1.0	15	5000	1.2	1.8	80

TABLE 2

Range and average daily intakes of specific nutrients based on one-week records (May 9–15, 1943, during meat rationing)

GROUP	NO. SUBJ.	AV. AGE	CALORIES	PROTEIN	CALCIUM	IRON	VITAMIN A	THIAMIN	RIBOFLAVIN	VITAMIN C
				gm.	*gm.*	*mg.*	*I.U.*	*mg.*	*mg.*	*mg.*
Sorority	5	20.5	1579–2206	49.2–73.9	.371–1.159	7.46–11.62	2,544–7,938	.629–1.284	.893–2.324	53–123
			1914	63.3	.827	9.55	4961	.986	1.722	91
Room and board	11	19.8	1918–2661	58.9–100.5	.652–2.265	9.08–16.99	2,502–10,096	.823–1.717	1,356–4.097	57–173
			2285	75.8	1.127	13.07	7557	1.270	2.357	109
Cottage	12	20.5	1864–3148	61.1–90.2	.701–1.693	9.59–14.13	6,744–11,825	1.012–1.628	1.684–3.274	47–136
			2327	72.7	1.091	11.90	9061	1.290	2.336	103
Dormitory	6	21.0	1639–2716	60.3–96.4	.607–1.437	11.50–15.50	5,332–13,943	1.081–1.681	1.275–3.159	51–145
			2358	81.7	1.107	13.36	8482	1.304	2.359	96
Graduate house	5	21.0	1567–2395	53.7–77.0	.687–1.545	7.40–11.79	3,843–5,521	.885–1.187	1.386–3.105	94–137
			2002	65.9	1.024	9.76	4664	1.015	2.030	120
Recommended Daily Allowances, National Research Council										
Moderately active woman			2500	60	.8	12	5000	1.5	2.2	70
Girl 16–20 yr			2400	75	1.0	15	5000	1.2	1.8	80

used in the preparation of vegetables is not included. The high figures for vitamin C in every group are of interest, but it must be remembered that this vitamin is the one probably subject to the greatest loss in food preparation.

The average figures for the two university-supervised groups (dormitory and cottage) and the room

The one sorority group represented in this series had the lowest intake of all nutrients calculated. The intakes of calories, protein, thiamin, and iron, and possibly, too, of calcium and riboflavin, were lower than one would wish them to be in young women, some of whom have not reached full growth. Since each sorority operates as a unit and since the

investigator questions the representativeness of this one sorority, a further investigation is now in progress to obtain a more representative picture.

The next poorest showing was made by the graduate house students who had freely chosen meals. Their averages were considerably better than the sorority group and slightly but consistently lower than those of the dormitory. (Cost may be a factor here.) To study further the factor of free selection, an investigation has been undertaken of five more groups of women who do not eat under university supervision either because of outside work or the lack of adequate campus facilities.

A comparison of the February (Table 1) and May (Table 2) records indicates no marked change in intakes incidental to meat rationing or seasonal changes; it is obvious, however, that the records from both periods show the same general tendencies. The lowest group (as to living circumstances) is still the lowest; the next lowest is next; the group with the highest vitamin C intake still shows the highest intake. This replication of pattern found in the groups gives one a feeling of confidence that the records portray with surprising accuracy actual habits of the groups; also that group differences are greater than rationing or seasonal differences.

Comparison to Dietary Pattern. Though there are many food groupings which may be used as a guide to an adequate diet, the following commonly used dietary pattern was arbitrarily chosen as a basis for comparison: meat, fish, poultry—at least 1 serving daily; eggs—3 to 4 a week, preferably one daily; milk, 3 to 4 cups daily; fruits and vegetables—4 to 5 servings daily, at least one of which is a good source of ascorbic acid, such as citrus fruit or tomatoes, and at least one, a green leafy or yellow vegetable; whole grain cereal—2 or more servings daily; butter or vitamin A-fortified margarine—at least 1 tablespoon daily.

An examination of the intake of specific foods in the food records readily explains certain of the figures for specific nutrients.

Of all the individuals studied there was no one who did not drink at least some milk. A large majority of the women, 93 per cent, drank at least 1 glass of milk per day; over half had at least 2 glasses per day; and more than one fourth had 3 or more glasses per day. In most instances, an increase of 1 to 2 glasses of milk per day would be desirable; however, it should be pointed out that only the milk drunk as beverage was included in the tabulation. Consequently, the figures would be somewhat higher if milk used in cooking were also included. The sorority and graduate house groups were definitely lowest in milk consumption, the dormitory highest.

About two thirds of all the women ate one or more servings daily in the meat, fish, and poultry group of foods. The room and board group had the lowest meat intake, 70 per cent of the members having recorded only 4 to 6 servings per week. More meat substitutes were used here; however, it was also interesting to note that liver was recorded more frequently in this group than elsewhere. This latter fact probably accounts for the high iron intake (Table 1) for this group, despite a lowered meat consumption.

One fifth of all the women did not eat even 1 egg during the entire week; the remaining four fifths ate at least 1 to 3 per week. Only about one fourth had as many as the suggested minimum of 4 eggs per week. Only one of the women consumed the desirable egg per day. Here again the sorority and graduate house women comprise the lowest scoring groups. From the figures for dormitory women it was obvious that as many as 4 to 6 eggs per week were available on the menu. From student comments it appears that specific individual preferences in regard to method of preparation were responsible for the low intake. Since the factors of time and labor in a large food service make it impossible to prepare each egg order according to individual preference, the consumption would be definitely reduced.

Whole grain cereal (including breadstuffs) consumption was as low as popular ideas would indicate. Only one third of the women had as much as 1 serving of whole grain cereal per day; one fourth had none for the entire week. No one had as much as the recommended pattern of 2 or more servings per day. None of the sorority group had as much as 1 serving per day; three fourths of the group had no whole grain cereal during the entire week. It was surprising that the cottage group, who missed the most breakfasts, had the highest whole grain cereal intake.

Since a limited availability of fruits and vegetables is one of the most common complaints among students, the investigator was interested in checking the intake of these two items in some detail. All women had at least 3 servings of fruits and vegetables per day, about four fifths had 4 or more servings, and two fifths had 5 or more per day. Again the sorority group was the lowest and the cottage group showed the best average intake.

Nearly everyone (95 per cent) had at least 1 serving of fruit per day and about half had 2 or more servings. The raw fruit intake was better than that for cooked fruit. More than two thirds of the women had 1 or more servings of raw fruit per day; slightly more than half had less than 1 serving of cooked fruit. Limitations imposed by rationing of canned fruit and unavailability of dried fruit undoubtedly seriously affected the intake of cooked fruits.

Three fourths of the women had 2 or more servings of vegetables per day; more than one third had 3 or more. The showing on raw vegetables was poor; nine tenths of the women had less than 1 serving per day. Practically all women had at least 1 serving of cooked vegetables per day; over half had 2 or more.

Since in every group at least a portion of the individuals had higher intakes, lower consumption would appear to be a matter of acceptance or lack of acceptance rather than availability.

Since one hears curious speculation concerning college women and potato consumption, it was a matter of interest to note just what was customary in this respect. From the student body comes complaint of the too frequent service of potatoes and well-informed persons express the belief that college women are likely to eliminate potatoes from their eating pattern. We discovered that no individual ate potatoes more than 9 times during the week, and only one person ate them to that extent. On the other hand, except in the sorority group, most women ate potatoes at least 4 to 7 times per week. Only 2 of the 43 women did not eat potatoes during the entire week. One fifth of all groups consumed potatoes as often as once a day.

Three fifths of all women had 1 or more servings of citrus fruit or tomatoes per day. A comparison of the dormitory and cottage group intakes reflected the fact that with a larger group of individuals in the cottages missing breakfast, the citrus fruit intake is definitely reduced. Breakfast in most instances is the time when citrus fruits are more likely to be available.

Every individual in the study, regardless of eating place, had less than the recommended serving per day of green leafy or yellow vegetable, but all individuals had some during the periods covered. Two thirds had 1 to 3 servings per week; one third had 4 to 6. The latter group shows that a higher consumption was possible from the available food, though not to the extent prescribed in the dietary pattern. The room and board group was the least favored in this respect.

Eating Habits. The results in regard to breakfasts will probably be surprising to some. One half the women studied never missed breakfast. An additional one third missed this meal only 1 to 2 days a week. No one missed breakfast consistently every day. The room and board and sorority groups had the best record in this respect, probably due to responsibility for breakfast preparation and greater latitude in breakfast hour. The cottage group had the poorest record, apparently due to their being loath to walk to the dormitory "just for breakfast."

Between-meal eating was not confined to any one group. Every student did some eating between meals; the range was from 3 to 18 times per week; the average, 1 to 2 times daily. The room and board group ate more often between meals, probably because of the easy accessibility to food; the cottage and graduate house groups were next, perhaps due to the habit of munching in rooms in lieu of breakfast.

In every group, the evening was the most favorable time for between-meal eating. The distribution by time of day varied somewhat with the living circumstance. In the dormitories where breakfasts were missed, there was a higher percentage of between-meal nibblings or snacks in the morning. In the room and board group, in which many members have late afternoon responsibilities to employers and are therefore at their living quarters, a higher percentage of between-meal eating occurred in the afternoon. In the graduate house, a much higher percentage was noted in the evening.

It seemed worth-while to check some of the popular notions as to what is eaten between meals. Judged by the records, availability, cost, and boxes from home appear to be determining factors with regard to the kind of food eaten between meals. Interestingly enough, the consumption of ice cream was very low, 3 to 10 per cent. Comparatively little (6 to 13 per cent) sandwich or cracker and cheese type of lunching was done. "Cokes," beer, etc., made up 13 to 25 per cent. In every group the highest consumption was in the "sweets" category which included cookies, candy, cake. Fruit was more commonly used between meals than is sometimes supposed, representing 16 to 24 per cent of the choices. It is interesting to note the fairly liberal use of milk as a between-meal snack in the sorority and room and board groups where it is more readily available. The latter point may indicate a path of action for dietitians and nutritionists.

SUMMARY

The nutritive intake and eating habits of groups of Cornell women living under five different circumstances were studied: in a supervised dormitory, in a sorority house, in different campus-controlled cottages with meals served in a central dormitory, in private homes where students work for room and board, and in a graduate house in which residents were free to choose their own eating places. In the supervised units, it is apparent that the opportunity to be well fed is available and in the majority of instances this opportunity is well utilized, but there are still individual problems.

The one sorority unit studied had somewhat poorer records than the other groups. Since each sorority operates as a unit, in order to obtain a more representative picture an investigation is now in progress with the cooperation of three more sororities employing the following types of food service: student-planned, cook-planned, and chaperon-planned.

A further investigation has been undertaken of 5 groups of women who do not eat under university supervision, either because of outside work or the lack of adequate university facilities. These records will be examined similarly with an eye to the relative adequacy of the food intake, eating habits, and cost.

Results of this investigation are already being used in teaching and in personal counseling at the Medical Clinic.

Effect of Quantity Preparation Procedures on Vitamin Retention: Canned Tomatoes[1]

ELLA GLEIM, MARGARET ALBURY, KATHRYN VISNYEI, J. R. McCARTNEY, and FAITH FENTON

State College of Home Economics, Cornell University, Ithaca, New York

THE purpose of this study was to determine the ascorbic acid, niacin, and carotene content of commercially canned tomatoes and their retention during heating procedures commonly employed in large-scale food preparation. The thiamin and riboflavin contents of the tomatoes were so low that losses during heating were not determined.

The tomatoes, part of the 1942 pack, were a long-stemmed variety canned in No. 10 cans by the Snider Packing Corporation, Rochester, New York, and stored at room temperature (65 to 70°F.) until used; the studies were made during May and June 1943.

METHODS

In all methods described below, except Method 2, the contents of 5 cans of tomatoes were mixed, a portion was removed for analysis, and an amount approximately equivalent to that in 4 cans, or sufficient for 100 servings, was heated. Exactly 13,550 gm. tomatoes (8480 gm. pulp and 5070 gm. liquid) were used, except in Method 2 in which unopened cans of tomatoes were heated.

Method 1. Tomatoes were placed in an aluminum dishpan and steamed in a preheated institution-type steamer. After allowing the air to escape for 1½ min., the steam vent was closed to build up 5 lb. pressure. At the end of 15 min. the steam was turned off and after 30 sec. more the tomatoes were removed from the steamer.

Method 2. Unopened cans of tomatoes were heated in a preheated institution-type steamer set at 5 lb. pressure, for 25½ min. Losses during cooking were based on vitamin content of 2 cans uncooked tomatoes.

Methods 3, 4, and 5. Tomatoes were placed in a heavy aluminum stockpot on the hot plate of a gas range. In Method 3, tomatoes were heated to serving temperature, 80° C.; the time required ranged from 40 to 60 min. In Method 4, tomatoes were brought to the boiling point which required 37 to 48 min., then simmered 30 min. In Method 5, tomatoes were brought to a boil, which required 29 to 33 min., then simmered 3 hr. These last 3 methods are of practical importance in the Army mess.

Sampling. Cooking losses were based on vitamin content of the unheated tomato pulp and liquid, analyzed separately before each study in order to determine the effect of the heating alone and to rule out variation of vitamin content from can to can as well as any storage losses that might have occurred. Samples of tomato pulp and liquid were analyzed separately, to obtain more accurate results and also to prevent mashing of the solids which would have interfered with palatability scoring. Duplicate samples were taken for each analysis.

Analysis. The method of analysis for ascorbic acid was the same as that previously reported for canned peas (1), except for the amounts: 20-gm. samples of tomatoes were taken and the extract was made up to 100 ml. and 5 ml. titrated.

Thiamin and riboflavin were determined according to the method previously reported for canned peas (1).

Carotene was determined by a method essentially that of Moore and Ely (2), in which 25-gm. samples were ground in a Waring Blendor with a mixture of absolute alcohol and petroleum ether and filtered by suction through a Buchner funnel until the residue was colorless. The combined filtrates were transferred to a separatory funnel and water was added to separate the alcohol from the ether layer. The remaining carotene in the alcohol water layer was extracted by repeated washings with ether. The ether extract was made to a volume of 250 ml. A 25-ml. aliquot was passed by suction through a column containing a mixture of magnesium oxide and Super-Cel. Ether containing a trace of alcohol was then added to lower the band of carotene in the column, and the upper, lycopene layer, cut off. The carotene layer was eluted from the column with a 2 per cent ethanol solution, made to a volume of 25 ml., and read in a photoelectric colorimeter. The readings so obtained were calculated, using a standard absorption curve made by obtaining readings from known solutions of pure beta-carotene at various levels.

Niacin determinations were made as previously reported for canned peas (1), except that 25-gm. samples were made to a volume of 2 instead of 4 liters.

[1] The work described in this paper was done under a contract recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Cornell University. Received for publication February 1, 1945.

Statistical Treatment. Since the liquid of canned tomatoes is commonly served with the vegetable, the total percentage of vitamin retained in the heated tomato pulp, plus liquid, was considered the most important figure to use for statistical analysis.

Standard errors were calculated and used in ascertaining, by the "t-value" method, the significance at the 5 per cent level of the differences of the observed percentage retentions of a vitamin between the heating methods (3).

SUMMARY AND DISCUSSION OF RESULTS

The ascorbic acid in the total unheated contents of the cans varied from 13.9 to 16.6 mg. per 100 gm.; carotene .366 to .397 mg.; and niacin .515 to .577 mg. per 100 gm. (Table 1). In the 2-month period during which analyses were made, the ascorbic acid content of the canned tomatoes apparently decreased from 16.6 to 13.9 mg. per 100 gm. The thiamin and riboflavin contents, .0564 and .0361 mg. per 100 gm., respectively, were so low that a deter-

TABLE 1

Effect of five methods of quantity heating of canned tomatoes on the content, distribution and retention of ascorbic acid, carotene and niacin

METHOD OF PREPARATION	VITAMIN CONTENT* AND DISTRIBUTION									RETENTION** ± S.E.† AND RANGE			NO. OF REPLICATIONS	PALATABILITY SCORE‡
	Ascorbic acid			Carotene			Niacin			Ascorbic Acid	Carotene	Niacin		
	Content	In solid	In liquid	Content	In solid	In liquid	Content	In solid	In liquid					
	mg./100 gm.	%	%	*mg./100 gm.*	%	%	*mg./100 gm.*	%	%	%	%	%		
1. Unheated	16.0	62.4	37.6				.652	61.9	38.1				3	
Heated in open pan in steamer set at 5 lb. pressure for 15 min.	14.9	46.0	47.1				.573	46.7	41.2	93.1 ± 0.55 92–94	90.3 ± 10.04 77–109	87.9 ± 4.18 79–93	3	13
2. Unheated	16.6	51.9	48.1	.366	70.6	29.4	.577	51.0	49.0				2	
Heated unopened in steamer set at 5 lb. pressure for 25 min.	15.3	48.3	44.3	.416	71.8	41.7	.613	56.0	49.5	92.6 ± 1.23 91–95	109.3 ± 12.44 85–126	105.5 ± 5.24 102–117	3	15
3. Unheated	15.4	62.5	37.5	.397	79.1	20.9	.549	55.5	44.5				4	
Heated to 80°C. in stockpot on gas plate (40–60 min.)	15.1	49.7	43.4	.359	70.5	14.9	.587	54.9	46.6	93.1 ± 3.08 88–102	99.5 ± 10.49 89–110	101.5 ± 2.79 94–106	4	11.8
4. Unheated	14.0	62.5	37.5				.515	65.8	34.2				3	
Brought to simmer in stockpot (37–48 min.) and held 30 min. at a simmer§	13.6	46.0	42.8				.596	54.4	51.7	88.8 ± 1.41 88–89	113.7 ± 10.12 99–135	106.1 ± 6.66 97–119	3	10.5
5. Unheated	13.9	61.7	38.3				.537	68.2	31.8				3	
Brought to simmer in stockpot (29–33 min.) and held 3 hr. at a simmer§	12.7	40.1	35.1				.473	39.4	32.7	75.2 ± 2.89 70–81	101.1 ± 10.97 85–122	72.1 ± 4.26 66–81	3	8.2

* The vitamin content is reported on the moist basis for the total contents of the can (pulp and liquid).

** The percentage vitamin retention in pulp and liquid was calculated on the moist basis using the weights of the unheated tomato pulp, the unheated liquid, the heated pulp and the heated liquid.

† The statistical treatment for ascorbic acid and niacin was made on the total of the percentage retention and solution in the heated tomatoes. The statistical treatment for carotene, however, was made on the percentage of carotene retained in the tomato pulp after heating.

Significant differences in retention were found between:

Ascorbic Acid	*Carotene*	*Niacin*
5 and 1, 2	None	5 and 2, 3
1 and 4		

‡ The highest possible score was 15 (5 each for color, texture, flavor).

§ This constitutes a combination heating and holding study.

mination of losses of these vitamins during cooking was considered of little importance.

A larger percentage of the ascorbic acid was found in the pulp of the unheated tomatoes than in the liquid (Table 1). In each of the methods of heating, this vitamin tended to become equally distributed between the pulp and the liquid. Almost three times as much carotene was present in the pulp as in the juice, which was to be expected since carotene is insoluble in water and also because the seeds, with a high carotene content, were included in the pulp. More niacin was present in the pulp than in the liquid, but during heating this vitamin tended to become equally distributed. Palatability scores are also given in Table 1, as well as the percentage of ascorbic acid and niacin retained in the tomatoes, the percentage of carotene retained in the pulp after heating by the various methods, and a statistical summary of these figures.

Practically no destruction of ascorbic acid, carotene, or niacin occurred during heating, by the three methods described, to a temperature suitable for serving. Prolonged heating, however, was harmful. A slight loss of ascorbic acid occurred during a 30-min. simmering period, and almost one fourth was lost at the end of a 3-hr. simmering period. An appreciable loss of niacin also occurred during simmering for 3 hr. No loss of carotene from the pulp occurred during long simmering periods.

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Amino Acids in Food and Drugs

A release by the Food and Drug Administration, in response to a request for a statement relating to the use of amino acids in foods and drugs, reads in part as follows:

"Amino acids cannot be added to any food for which a definition and standard has been promulgated because no provisions have been made for their use in any of the standards that are now effective. There are no prohibitions against the addition of amino acids to foods for which there are no definitions and standards other than those that relate to misbranding. A food to which amino acids have been added will be regarded as a food for special dietary use and must, therefore, be labeled to conform to the regulations for this class of foods. If an amino acid is added as a racemic mixture of two optical forms of which only one form can be utilized, the ingredient statement must indicate that a racemic mixture is used, but in complying with the regulations, only the quantity of the active form of the acid shall be declared.

"There is no evidence that amino acids added to foods will accomplish anything that cannot be accomplished by proper use of proteins as they occur naturally in our foods. Any need for adding amino acids to foods may, therefore, be viewed in the light of adequacy of protein intake. Studies made by the Committee on Proteins of the National Research Council during the past two years have shown that the average protein intake is about 100 gm. a day and that more than half of this is from animal sources such as meat, fish, milk and eggs. Obviously one must look for very restricted diets if one expects to find persons on inadequate protein intakes.

"On the basis of animal experimentation we may expect the carefully adjusted quantities of pure amino acids necessary to meet the minimum protein requirements of man to be about one half of the present recommended protein intake. Indications are that requirements for individual amino acids range from about 1 to 5 gm. a day. Obviously the addition of a few milligrams of an amino acid to the quantity of food that would be consumed in a day would serve no useful purpose. Protein hydrolysates may serve as a source of amino acids. These preparations may be so variable in composition that special consideration must be given to individual products with respect to their suitability as food ingredients and to their declaration as food ingredients.

"Amino acid preparations for oral use fall in the category of foods for special dietary use but may also in some cases be subject to the drug provisions of the act. Amino acid preparations offered for parenteral use fall in the category of new drugs.

"There is insufficient information to provide a basis for setting standards for amino acid dosage, but amino acid preparations intended to supply needs as food must supply these acids in substantial quantities. Preparations of protein hydrolysates may be so dilute that it would be impractical to administer an effective dose of amino acids."

Address of President-Elect[1]

BESSIE BROOKS WEST

Department of Institutional Management, Kansas State College, Manhattan

I AM humble as I assume the office of President of this Association and deeply appreciative of the honor, the opportunity, and the obligations bestowed on me. I pledge you my best efforts and know that you share in my hope that this year will take its place in the worthy development of the lifetime of this organization.

This year "the lights are bright" for dietitians, as Miss Moore has so ably pointed out.[2] I was interested that she chose to derive the subject of her address from the world situation, since I have attempted to group the ideas I wish to share with you under a title as recent as the capitulation of Tokyo. Awareness of the dietitian's deep concern with the world struggle and of the fine contribution that many have made to the ultimate victory no doubt accounts for the similar trend in our thinking. Specifically, my topic is phrased as "Some Radiations From Atomic Energy." Far from attempting to reveal any major security secret, or instruct you in the complicated and hazardous chemical reactions involved in this newest implement of death, I propose rather to call your attention to a simple, brief description of the tremendous force that men and women have been able to consolidate within this bomb, and to draw some analogy to our work in this Association.

According to a recent bulletin,[3] "Atomic bombs are extremely special things for extremely special purposes. In nontechnical terms, they are extraordinary concentrations of energy which can be preserved almost indefinitely and released at will in a thousandth of a second. It is this combination of properties that makes the bombs terrible instruments of destruction. All matter has subatomic energies; in fact, in the materials of which we ourselves are composed there is a million times enough energy, if it were suddenly released, to rend us into fragments. There are great energies also at the molecular level. For example, there are prodigious quantities of energy in the heat of the earth at relatively short distances below its surface; there is much more than enough for human needs in the heat currently received from the sun, and also in the tides and in the winds. The problem is to store it safely at not too great cost and to control its rate of release."

We have all felt the joy of victory to be tempered by a realization of the terrific and far-flung possibilities in this great discovery. Not one of us has failed to recognize the absolute necessity of a deepened worth in human beings if the discovery is to be made fruitful rather than destructive to man. For this brief time, let us turn from the somber reality of the bomb itself to some implications it may have for us as individuals and as members of our organization.

First, is it not true that all people, like all matter, have great potential energies which are often neither recognized nor effectively used. Evidence of such energy, not under wise control, is found in destructive activities of these times. If we think of the human "subatomic energy" as a force which is all too rarely released and made available to enrich life, we realize that still another angle needs attention or careful consideration. Each of us as individuals and as members of this Association has great subatomic energy which might effect far-reaching achievements if we could and would unlock our store and draw freely on our reserve. They tell us that only radioactive elements have such capacity.

Possibly the great need is for some means of making people, in effect, "radioactive," that is, able to draw on their full energy in a continuing contribution to their profession, their community, and their times. Specifically, some of the members of this Association have shown indications of radioactivity and of subatomic energy in the long hours of sorely needed service with the armed forces or on the home front; others have shown similar force in their contributions to research, education, to the hospitals, industry, schools and other institutions. There are, of course, some who as yet have not recognized their potential energies or found ways to relate themselves and their activities to the world about them. The inertness of even one member should arouse concern

[1] Presented before the House of Delegates, American Dietetic Association, Chicago, October 16, 1945.

Editor's Note: Mrs. West addressed the House of Delegates as President-Elect. She assumed the office of President at the close of the sessions of the House of Delegates, October 17, 1945.

[2] J. Am. Dietet. A. 21: 683, 1945.

[3] Atomic Bombs and Dreams, American Association for the Advancement of Science Bull. 4: 58, 1945.

in any organization. Perhaps the approach to these inactive members would be through tapping molecular energy, that is, making combinations of the individual human atoms into well-knit groups which might be thought of as molecules and then utilizing the group energy for a creative, controlled, and directed program. We have this provision in our state associations in which well-knit group action should provide great molecular strength as well as stimulate the use of individual energy for the common good.

As we look back we see that we grew slowly but steadily during our formative years. It took us ten years (1917–27) to grow to a membership of one thousand. From 1927–39 we added another three thousand, making a total of four thousand at the period just before the war. By increasing membership at a yearly rate of approximately ten per cent, we now have arrived at a total of seventy-five hundred.

This unprecedented growth in numbers called for changes in organization, management, and finally a complete revision of our Constitution. In 1940, an Educational Director was added to the staff, which gave continuity and strength to the total educational program sponsored by our Association. An Executive Secretary was appointed in 1942 to direct and carry out the expanding program of work as set up by the Executive Board. The establishment of these two permanent offices laid a solid foundation on which to build a structure broad enough to meet the inevitable demands of a growingly diversified membership.

The new Constitution, adopted just one year ago, provided the mechanical means for the enlargement of the services that far-seeing Executive Boards had envisioned. The new Constitution not only brings potential membership strength to the state associations, by providing that every member of the American Dietetic Association automatically shall become a member of the affiliated state association of her residence, but also gives a sense of financial security in that twenty-five per cent of each member's dues shall be returned to the state association. The remainder of the dues is to be used by the central office for developing the organization now functioning and to offer expanded services to the members and to state groups. The 1944–45 and 1945–46 Executive Boards have taken a long-range view of Association problems and have outlined a program which, over a period of years, should meet the expanding needs of a growing association. These include:

1. Strengthening further the approved course program.
2. Strengthening the placement service.
3. Aiding in the redeployment of dietitians attached to the armed services as they return to civilian life.
4. Building an adequate library and consultation service.
5. Developing public relations activities.
6. Expanding the JOURNAL staff to include an associate editor.
7. Publishing new and revised books and other material.
8. Establishing a scholarship fund.

The courses approved by our Association now number 74, and in 1944–45 approximately 950 student dietitians were graduated. These courses are well scattered geographically and are designed to prepare students for the many areas of dietetics in which the young graduate of today sees inspired opportunity and new fields to conquer. She is aware, of course, that the term "dietitian" long ago outgrew its narrow association with "invalid cookery," and she will look about for the type of training which most interests her, be it in the school lunchroom, the industrial food service, the hotel, the college residence hall, the state institution, the dining car, or the luxury air liner. The objectives of the courses as now set up and of those to be established are to provide training for the dietitian of tomorrow whose opportunities will be limited only by her ability, her imagination, and her will to accomplish.

As the number and scope of our approved courses expand, more of the Educational Director's time must be devoted to their supervision. Then, too, the increase in the number of courses has brought a relative increase in the applications for membership. More than 1200 applications for membership were received and reviewed last year. To allow the Educational Director additional time in the field the Finance Committee is recommending that assistance be given her in order to free her from many of the routine membership responsibilities that she has formerly assumed. It is hoped, too, that by this plan the work of the Membership Committee will be lightened. Inevitably, in a rapidly growing organization, volunteer work becomes no longer feasible. It is believed that we have reached this point in several respects.

The Placement Bureau has always ranked high among the services offered to our Association members and the organizations interested in the employment of dietitians. The Finance Committee, in making up the budget for the coming year, believed that an increased expenditure of Association funds for the operation of the Placement Bureau was clearly indicated, since it would benefit the majority of those now being released from the armed forces and organizations auxiliary to these, many of whom within the next few months will be seeking reemployment, and who constitute 22 per cent of our membership. The bureau will continue, as in the past, to serve those who have remained on the job as

civilians during the emergency but who now may wish to make a change. You will recall that the report of the War Activities Council in 1944 indicated that hospitals alone would employ approximately 43 per cent more dietitians when available. A similar study of the need for administrative dietitians is now in progress.

Present plans also call for an assistant to the Executive Secretary who will take over the dual role of assisting the Educational Director with membership problems and the Executive Secretary with Placement Bureau activities. The advantages of such a tie-up are obvious.

What dietitian working at home or abroad during the past several years has not dreamed of a kitchen and service units in which the equipment is new and the working areas are well arranged? Letters of inquiry are already beginning to come to the executive office from those dreamers to whom this reconversion now appears as a near reality. They need help, and to whom shall they turn? As one dietitian wrote, "I need a new dishwashing machine, but all I know about equipment I learned ten years ago. Can't you help?" Others need assistance in problems of kitchen layout, expansion of present building facilities, and so on. To meet such needs and to increase the use of our library facilities, which this year we hope to expand, the Finance Committee has recommended the employment of an administrative dietitian who will serve as consultant and librarian. Her responsibilities will include the building of a reference library and developing ways and means of making this material available to all members.

The need for a well balanced program of public relations for the Association was pointed out in the President's address. Toward this end, a Public Relations Committee is being set up this year to present to the public our Association and the profession it represents, its goals, its objectives, and its program. It is hoped that this committee, with the aid of every member, will be able to gain wider recognition of the over-all work of the dietitian so that the public in general may have the same high regard for our work as does an all too limited group at the present time.

We are all aware that the publications of an organization are the backbone of an efficient public relations program. Fortunately, this part of our structure has grown strong through many years of development and today our JOURNAL is recognized as a leader in its field, especially in the areas of applied research in nutrition, dietetics, and management. As such, it affords a source of up-to-date information to all members, and to our associates in allied fields. Through its selected advertising the JOURNAL gives the latest information on equipment and foods, and from these advertisers helpful and descriptive literature can be obtained. Through news of the activities of state and local associations and their members, friendships and professional progress are furthered. Present plans include the appointment of an associate editor.

The results of the projects of the various sections and committees of the Association are of such interest and value that many have been published or are in the process of being prepared for publication. In this form, they may be more fully utilized by our members and others. New publications which we anticipate will be available by spring include: Handbook of Diet Therapy; Allergy Recipes; *Nutrition Bibliography; Manual for Teaching Dietetics to Student Nurses*, Sections I and II; Physical Examination Blanks; Rating Scales; and an Outline of Methods for Teaching Dietitians. A revision of *Quantity Food Service Recipes*, published by the Association in 1940, is being planned.

In order to publicize reprints and publications of the Association, a leaflet listing the prices of these has been prepared. It is planned to bring this listing up to date three or four times each year. Since the leaflet has been widely distributed both to members and nonmembers, the sale of reprints from the JOURNAL has greatly increased as evidenced by the Association's recent financial statement.

Know Your Association is the title of a leaflet being prepared by the executive staff for distribution to members, and to those who have recently resigned in good standing. It will be useful also as a means of acquainting nonmembers with Association activities. This small brochure will include a résumé of the history, the objectives, and the policies of our Association.

A special meeting of Directors of Approved Courses is being scheduled for 1946. Such a meeting seems imperative now that so many changes are taking place within the courses. The time has arrived for concerted efforts toward standardization of approved courses. Work has progressed in setting "minimum standards" for classwork. This is not intended to delimit the high quality of the classwork now offered by many course directors, even though it sets a basement rather than a ceiling for work to be accomplished. This proposed meeting will afford directors an opportunity to discuss problems, exchange information, and coordinate plans for teaching, of advantage to all.

What our Association may be tomorrow depends largely on the foundation and structure we build today. In this new era we all must face those problems which have become of particular importance. Today the total philosophy of education is in the process of change. The specific "carry-over" from any given course is questioned and attention is focused on meeting student needs rather than covering specific subject matter. This trend presents issues

which our committees for approving courses must consider in shaping that part of the Association policy. The Professional Education Section senses the force of the trend and is shaping its program to meet more nearly modern educational objectives.

Again, to keep pace with the times, any progressive educational plan must be cognizant of the need for and means of developing a sound research program within all areas of work in which dietitians are engaged. Dietitians have many opportunities for administrative research and have made real efforts in this direction in coping with changing situations and restrictions. Many evidences of the need for changes in procedure could be measured, for example, in time and money saved, or greater acceptability of food because of better food preparation. Let us look at our own records for sound research data that are as pertinent in this field of endeavor as milligrams of certain substances are to the laboratory research worker. It is essential to budget both time and money in order to make use of the opportunities and practices available. Nor should research be restricted to administration. Dietary histories and chemical and biological findings as they relate to physical condition could be summarized to show the value of the work of the dietitian.

We have unlimited potentialities, both individually and as a group. In the splitting of the atom its energies radiate afar. So may our energies be likewise more widely diffused and at the same time some of our inner core of selfishness and stultifying self-content may be consumed. Our program as planned for 1945–46 is in keeping with the start of the new era, the atomic age. The extent to which we keep pace with this era and its rapid changes depends on the participation of every member of the American Dietetic Association.

Home Economics Women in Business

The success of the work of pioneers in the business world will be a big factor in determining the future of the home economics women in business. Considering these opportunities, it is important that we have home economists equipped for the business world. To date, we have been prone to look at the business world through home economics eyes, and miss the business viewpoint.

Some special training is required. The home economics degree alone is not enough. The dietitian spends several months as a pupil dietitian. In the same way the HEWIB needs training. This may be secured in several ways:

1. In undergraduate years during vacation, employment in the business world that brings students in contact with the public and gives them an opportunity for practical training. This also will give business and industry an opportunity to select promising students for post-graduate employment.
2. In senior years, special elective courses, to be given by experienced men and women from the field—such as courses in journalism, radio, public speaking, commercial dietetics, merchandising, typing.
3. Students should read and study all available material about the HEWIBS. University and high school libraries should be well stocked with recommended reading pertaining to fields of business.
4. Practical training in the business world after graduation, in a chosen field. It is important that the home economist develop the attitude of an "apprentice" rather than a university graduate.

HEWIBS should be proficient typists, using the touch system. An understanding of simple bookkeeping is helpful. Ability to spell and put together simple English sentences is important. A clear voice and ability to think on one's feet are valuable assets. One of the most important assets is the ability to think, write and talk in the layman's language.

One of the present difficulties is establishing a contact between the business employer who requires a home economist, and the qualified home economist who wants a job. Some type of registry of the media of vocational guidance is indicated.

More attention should be paid to informing business about home economists and how they could fit into the various fields. The average business man knows very little about us.

The most valuable publicity for HEWIBS is the success of those home economists now active in the business world. Many pamphlets and articles in trade and business magazines would prove helpful. First, however, we must make very sure that we have available well trained home economists with the qualifications which are required.—*Alice Stevens, chairman, Home Economics Women in Business, Canadian Home Economics Association, in the Newsletter of the Association, September 1945, Winnipeg, Manitoba.*

The Administrative Dietitian in Industrial Feeding[1]

QUINDARA OLIVER DODGE

Mrs. Dodge, a past-president of the American Dietetic Association and director of an administrative training course for dietitians which has been approved by the American Dietetic Association since 1932, is also chairman of the Subcommittee on Industrial Nutrition of the Massachusetts Committee on Public Safety.

In this last-mentioned capacity Mrs. Dodge developed a Weekly Menu and Nutrition Service for Massachusetts industries in cooperation with the Associated Industries of Massachusetts and prepared eight papers on the subject of in-plant feeding and nutrition which appeared in monthly publications addressed to management in industry. She is also associate professor, Institutional Management, Simmons College, and director, Vocational Training Department, Women's Educational and Industrial Union, Boston.

"WAR is a great spur to the adoption of scientific methods. . . . This is the day of the dietitian, whose scientific approach to the question of better health and bodily vigor through tasty, properly prepared, adequately-balanced meals, is paving the way to higher national health standards."

This quotation from a significant editorial entitled "Dietitians to the Fore," in the March 1944 issue of *Industry* (1), accentuates the fact that management has a vital stake in in-plant feeding.

The National Planning Association, in a recent publication (2) prepared by its three committees—business, agricultural, and labor—has made a pertinent observation on the needs of those who must eat all or part of their meals away from home:

> Perhaps in recent war years, as many as a fifth of the meals in the United States have been eaten away from home. Many . . . are unmarried persons, without experience in selecting balanced meals. They may have formed good habits in their childhood, or in the meals taken at home morning or night, but often this is not the case. Many of them, on their own, for part or all of their meals, do a particularly poor job of balancing their diets. They need the same kind of help as the homemakers, but with adaptation to their special circumstances.

An awareness of all this, and much more, has brought management in industry to a realization of the importance of providing employees with good, well-balanced diets.

Those looking for trained managers in industrial feeding must get administrative dietitians to do the job. What types of training and experience are to be demanded of these dietitians and what authority and responsibilities are to be delegated to such administrative personnel?

[1] Presented before the Food Service Directors Conference, Hartford, Connecticut, November 10, 1945.

ADMINISTRATIVE DIETITIAN EQUIPPED FOR THE JOB

The administrative dietitian is equipped by training, experience, and administrative ability to be the executive head of any large-scale feeding department (3). Her scientific preparation in her undergraduate college years is followed by 12 months of postgraduate special training in an administrative or hospital course that has met and adheres to the high standards set by the American Dietetic Association for all approved courses for student dietitians. Following her graduate training, she serves as an assistant administrative dietitian in charge of definite sections of a large-scale feeding department for from 3 to 5 years. During this period, she progresses to complete administrative responsibility for one departmental division, where she has ample opportunity to demonstrate essential qualities of executive leadership and faculties for cooperation. This administrative experience following the fifth year of intensive training is acquired in a hospital, school cafeteria, industrial feeding department, college residence hall, hotel, or restaurant.

Any dietitian who is being considered by plant management as the executive head of the industrial feeding department or as an assistant administrative dietitian should have the training and experience just outlined. To evaluate the qualifications of a dietitian, management should know the requirements set

up by the profession for training and experience prerequisite to membership in the American Dietetic Association. These requirements serve as an excellent yardstick by which any administrative dietitian's qualifications may be measured.

PROFESSIONAL REQUIREMENTS FOR THE DIETITIAN

The American Dietetic Association has been developing and guiding the professional standards for the training and experience of dietitians and their job standards since its organization in 1917 during World War I. At that time, the term "dietitian" meant a hospital dietitian only. Today there are as many classifications of dietitians as there are classifications of physicians or engineers. Standards for the dietitian have been progressively raised by the American Dietetic Association with the close cooperation of other professional associations, especially the American College of Physicians and Surgeons, the American Medical Association, the American Hospital Association, the American Home Economics Association, and the American Public Health Association. Each type of dietitian is equipped by training, experience, and personal qualifications to make a distinct contribution in a special field. It is therefore important that a dietitian be selected to fit the type of job for which she is *fully qualified.*

Regardless of the job classification, *all dietitians must meet the same basic requirements for active membership in the American Dietetic Association.* These basic requirements (4) include prescribed standards of academic preparation, experience, and a satisfactory personal record.

To meet the standards of academic preparation for active membership, a bachelor's degree from an accredited college or university, based on at least the required minimum number of credit hours distributed among the required courses, is essential. The required courses include the following subject groups: Chemistry, Biology, Social Sciences, Education, Foods, Nutrition and Dietetics, and the important institution management courses classified under Institution Economics. A prospective member's academic record must also show proficiency in such studies.

To meet the experience requirement for active membership, a dietitian must either have satisfactorily completed one of the three types of approved 12-month graduate courses for student dietitians—hospital, administrative, or food clinic—or have qualified under four categories of satisfactory and acceptable experience in which 3 years' work is substituted for the one year of intensive approved course training.

For students entering courses primarily for administrative training, academic preparation, additional to that necessary for active membership, with special emphasis on Institution Economics, is required by some course directors. In addition, since appointments in these courses are awarded competitively, college graduates with the most satisfactory all-round records of health, grades, and personal assets are the ones to receive appointment. Thus, it can readily be seen that among the younger members of the American Dietetic Association, those who are approved course graduates assume the responsibilities of their first jobs equipped with academic preparation and professional proficiency superior to that of those who assume such responsibilities immediately upon graduation from college.

To meet the "satisfactory personal record" for active membership, there must be evidence that the prospective dietitian possesses the desirable attributes of character, health and personality, and is fully cognizant of the professional ethics essential to success in her chosen field.

TRAINING THE ADMINISTRATIVE DIETITIAN

The training of the administrative dietitian falls into two distinct phases: the first, her undergraduate college preparation, where she secures a sound foundation in those subjects essential to her field of specialization; the second, her special training on the job in an approved postgraduate administrative student dietitian course.

The administrative dietitian, in addition to the academic requirements just outlined, must have a broad preparation in Institution Economics in her undergraduate college work, since this is the subject matter in which modern scientific management principles are applied to the organization and administration of all types of large-scale feeding departments. Further, in large-scale feeding, proficiency and insight into Institution Economics, sometimes called institution management,[2] provide the tool by which the sciences of foods and nutrition are put into practical daily use. The subjects required for institution management insight are organization and management, institution menu planning, quantity cookery, experimental cookery, demonstration cookery, applied accounting and cost control, institutional marketing, institution equipment and layout, personnel management, sales and merchandising, public health nutrition, labor, advertising, and business law.

The intensive 12-month graduate administrative training course provides practical, down-to-earth, everyday experience in the same work situations and under the same conditions to which regular employees are subject, and covering every type of job found in large-scale feeding, along with supervisory and executive training. The training course is in no sense an apprentice course, since apprentice training is a term applied more specifically to long-period training in a trade or art requiring chiefly manual

[2] A study of college bulletins shows the terms Institution Management and Institution Administration, subjects under the general group of Institution Economics, interchangeably used among colleges and universities.

dexterity. Evaluated from the standpoint of management, graduate administrative courses are comparable to both the supervisory and executive training which the management of many large business and industrial organizations offers to college graduates, and to the scientific and professional training which is available in hospitals approved for the training of medical interns.

During this period of training, the student administrative dietitian is given repeated opportunity, under guidance, to:

1. Develop skills in food production and service.
2. Apply with increasing judgment the scientific and technological principles learned in college to actual work conditions and materials.
3. Control the nutritional quality as well as appetite appeal of foods served, by safeguarding foods from the usually destructive effect on flavor and food values other than calories, of large-scale cooking and serving methods.
4. Acquire first-hand insight into the best methods of securing working relationships with employees, co-workers, and superiors.
5. Learn how to meet emergencies and daily operating problems—inherent or unavoidable in dealing with men, machines, or physical plant—with dignity and poise.

The student is given repeated evidence that large-scale feeding is a small profit margin proposition; the control of waste, inefficiency, and improper usage and maintenance, therefore, becomes her constant concern. Menu planning and merchandising are correlated closely with marketing, storeroom control, and the keeping of essential records. The student standardizes quantity recipes, makes cost and yield studies, motion and time studies, and becomes conversant with employee schedules and production records of control.

Self-instruction techniques, in preference to formalized classroom work, are developed by individual and group projects which bring rich returns to the student. Responsibilities are so assigned as to develop powers of observation and concentration in the student and to enable her to accomplish mentally creative work even when she is physically tired, so that growth in character and personal assets essential to leadership will result. Attendance is required at lectures at the graduate level and professional or trade association meetings related to the student's work experience. The conference method of directed group discussion is used to promote insight into daily and long-range management problems, while frequent individual conferences have been found essential to personal growth and administrative insight.

During at least two months of the 12-month course, the student is given supervisory and administrative responsibility so that she may learn at first hand what it means to be accountable for final results.

The fact that the basic tools of the dietitian—foods, nutrition, and institution management—are applied *identically* to all types of large-scale feeding departments, enables the administrative dietitian to change from one type of large-scale feeding operation to another, provided she has the maturity, aptitudes, interests, and other essential personal qualifications.

PERSONAL QUALIFICATIONS

There are many personal qualifications which an administrative dietitian must have. Usually she will show especial strength in several areas, for like any human being she will not possess every desirable qualification one might list, nor will all those she does possess be developed to the maximum degree. An employer must make his choice as to which strength or combination of strengths best fits his needs. The relative importance of these personal qualifications must be weighed in the light of the applicant's maturity and her potentialities for growth. Experience has shown that it is unwise to employ young and professionally immature dietitians in industrial feeding departments, regardless of their training, unless they are responsible solely to a fully qualified administrative dietitian.

An administrative dietitian possesses a pleasing appearance and cordial manner. She dresses appropriately in reserved good taste and adheres to impeccable standards of grooming at all times. She has buoyant good health, coupled with good spirits and a sense of humor. She is approachable, yet dignified. She exhibits a high degree of personal integrity, sound common sense, adaptability, resourcefulness, dependability, and accuracy, all so essential to professional and executive leadership. She has, or will be able to develop, the ability to be tactful or forthright, as the occasion demands, in giving and accepting or rejecting honest and constructive criticism. Her high ideals, professional ethics, a genuine sense of loyalty, and pride in the standards of the company or organization, go hand in hand with her cooperativeness, judgment, creative imagination, and forcefulness in vitalizing her planning and decisions. She shows interest and participates in professional or trade activities whenever possible. She possesses a genuine liking for people, the ability to work with varied groups and to inspire high morale in the individual and esprit de corps in a group. She is ready to assume responsibility, is proficient in organizing, can be depended upon to carry the job through, and has the desire and ability to "go the second mile"; withal, she remains a human and understanding person. In short, she combines all the professional and executive assets essential to the success of a large-scale feeding operation.

AUTHORITY AND DUTIES OF THE ADMINISTRATIVE DIETITIAN

When management determines the financial and administrative policies with respect to industrial

feeding within the plant, management holds the dietitian responsible for the execution of these policies, and authority commensurate with the responsibility must also be delegated to the dietitian. Among other things, such authority must permit the dietitian accessibility to an executive of the organization whose influence and position can shape policy. This will ensure prompt action on suggestions or plans designed to improve the industrial feeding operation. The dietitian, being responsible for the department, must possess the administrative authority essential to efficient supervision and control.

No two companies are identical, the organizational structure and policies of a company being influenced by varied factors. Accordingly, the position of the industrial feeding department within this structure will vary with the type of the company, its size, and the nature of the manufacturing processes. In a company having the line and staff organization, the industrial feeding department usually functions most efficiently as a service and health department under the executive in charge of industrial relations. Harmony and cooperation between this department, with its great opportunities for *indirect* nutrition education, and the medical department, which might have the *direct* nutrition education responsibility, assure maximum nutritional health for all employees. In the line (military), line and staff, or purely functional type of organization, the administrative dietitian in charge of the industrial feeding department is directly responsible to the superintendent and, through him, to the general manager. In a large company having cafeterias in several plants located near each other, there should be assistant administrative dietitians in charge of each cafeteria responsible to the executive dietitian in charge of the industrial feeding department. This department should embrace all the feeding facilities, including cafeterias and mobile or stationary units, within the plant or plants in the locality.

Lines of responsibility and authority must be fixed so that the executive dietitian, having the necessary knowledge and skills, will be responsible for all the highly specialized aspects of the department. This responsibility for the work of the department must carry with it the necessary authority to prescribe how and when work shall be done, full control over the personnel doing it, and the records, equipment, layout, and food supplies necessary for food production and service. Except in rare instances, it will be found to be a mistaken policy to employ an administrative dietitian as an assistant to an untrained manager of an industrial feeding department, one who has no understanding of the special contribution the dietitian is prepared to make. Under such circumstances, she might be assigned duties that cut across the entire gamut of food production and service, without possessing the authority necessary to obtain results. She would then be blamed for failure when, in reality, the lines of authority and responsibility were at fault. Thus, from a management angle, the duties assigned to a so-called food service manager really are not the duties of an administrative dietitian, but those of an *assistant* administrative dietitian.

The present practice of progressive industrial organizations (5, 6, 7) is to set up industrial feeding departments and to delegate the requisite authority to the administrative dietitian in charge of the department. For example, the Cafeteria Manager of the Aetna Life Insurance Company, Hartford, Connecticut, has such authority and duties and is responsible to the vice-president. From the Eastman Kodak Company, Rochester, New York, W. A. Sawyer, M.D., Medical Director, writes:

> The supervision of our in-plant feeding service to employees is not a function of the Medical Department. Each plant has its own administrative dietitian responsible in some instances to the Manager of Industrial Relations and in other instances to the Office Manager or Works Accountant. However, the Nutrition Adviser on the staff of the Medical Department acts as consultant for the administrative dietitians of plant cafeterias.

In the Glenn L. Martin-Nebraska Co., Omaha, the Director of Cafeterias is responsible to the Director of the Personnel Department. The cafeteria director's staff consists of an assistant director, an administrative dietitian for each cafeteria, an accountant, and a storeroom supervisor. The cafeterias form a division of the Personnel Department.

A summary of the more important duties for which the administrative dietitian must be assigned the authority as well as the responsibility, if results are to be secured, follows:

1. Setting up and adhering to the financial budget.
2. Determining the size and duties of the department's supervisory staff.
3. Setting up and keeping adequate departmental records, to ensure financial control, as follows: daily, weekly, and monthly income and expenses, purchases, menus, and maintenance costs.
4. Menu planning, production, and service of food of excellent quality and optimum nutritional value.
5. Standardization and cost accounting of quantity recipes.
6. Calculation of nutritive essentials of the food served.
7. Buying, storage, and issuance of all food, as well as buying of equipment, utensils, and general supplies.
8. Selection, training, and discharge of employees.
9. Development of a direct and indirect nutrition education program.
10. Maintenance of good sanitary conditions as they affect food handling, dishwashing, housekeeping, and plant upkeep.
11. Cooperation with all other department heads or committees (in any way and at any time that the cafeteria, mobile or stationary feeding units, or her

staff can assist these executives or professional or supervisory heads) in securing improved health and better morale, with consequent increased plant production, reduced accidents, and reduced absenteeism.

The satisfactory discharge of these duties should ensure: the operation of the industrial feeding department without financial loss; the development of a scientifically sound indirect nutrition education program; the development of adequate feeding departmental records of control; the development of a sound food department employee training program; the integration of perfected employee schedules with scientific menu planning to reduce labor costs and increase retention of nutritive values in food served; the operation of the department with maximum use of work centers and equipment facilities; and the development of, or cooperation with, the promotion of an aggressive and direct nutrition education program.

Management in industry may expect satisfactory results from its industrial feeding department only if it has formulated sound financial and administrative policies and delegated essential authority to a properly qualified administrative dietitian as the executive head of the department.

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A NATIONAL SCIENCE FOUNDATION

"For some weeks hearings have been held by the subcommittee of the Committee on Military Affairs of the U. S. Senate on the proposals to create a National Science Foundation, a government agency to be charged with encouragement of scientific research. Several measures have been presented to the Congress to effectuate this objective. Their number and diversity indicate the difficulty of finding the best possible formula. Care is necessary if the objects sought are to be achieved without permitting domination of research by a federal bureaucracy and inhibition of private initiative or the spending of vast funds without adequate return. The work of the Committee on Medical Research and of the Office of Scientific Research and Development during the war proved that funds can be used satisfactorily to encourage research and to coordinate and intensify the speed with which the results of research can be applied."

Fundamental to the creation of the National Science Foundation is its structural organization. The director would be responsible for administration of affairs of the National Science Foundation, but policies would be determined by the directing board and it would have the responsibility for selecting the universities, hospitals, institutes of research and other agencies to which grants could be made. Under the directing board would be a number of subsidiary boards dealing with such subjects as the national defense, medicine, and the basic sciences. Possibly there might be, in accordance with the recommendation of President Truman, a division for the social sciences, although the point has been made that much research in the field of the social sciences is developed and promoted primarily with a view to securing political and legislative action.

Among the best possible activities to be conducted by the proposed National Science Foundation is the creation of fellowships, residencies, traveling scholarships and similar positions to be subsidized with the aid of federal funds. Investigations in the uses of the sulfonamide drugs, in the development of the uses of blood and the various derivatives of blood and investigations in the treatment of burns, in the control of malaria and many tropical disorders, in diet and in nutrition have brought fruitful results by the utilization of a well-coordinated and intensified program of study.—*From an editorial in the J. A. M. A., November 10, 1945.*

The Educational Qualifications of Nutritionists in Health Agencies[1]

COMMITTEE ON PROFESSIONAL EDUCATION,
AMERICAN PUBLIC HEALTH ASSOCIATION[2]

IN VIEW of the great advance in the science of nutrition and the realization on the part of public health workers that proper nutrition of individuals plays an important part in maintaining well-being, there is an increasing demand for properly trained workers to carry on nutrition programs in the field of public health. The past few years have seen a marked increase in the employment of nutritionists by public health agencies, both official and voluntary. The same period has marked the beginning of research in nutritional status and food consumption as a function of public health agencies and also of nutrition service as an aspect of industrial hygiene. Many official public health agencies are charged with responsibility for institutional care of fairly large numbers of people, notably in tuberculosis sanatoria and in hospitals and wards for the care of crippled children. In these institutions, the dietary department requires competent supervision both because diet is such an important aspect of treatment and also because food is likely to be one of the major items in the budget.

[1] The Committee on Professional Education of the American Public Health Association has authorized the publication of this report before transmittal to the Governing Council in order to permit the members and Fellows of the Association and others to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

This proposed report is a revision of the Report on the Educational Qualifications of Nutritionists in Health Agencies approved by the Governing Council on October 13, 1941, and is intended to supersede the earlier report. It has been approved for publication in the respective journals of the American Dietetic Association and the American Home Economics Association by their Executive Boards, with minor editorial changes.

[2] The members of the subcommittee who prepared this proposed revision are: Pearl McIver, R.N., Referee; Helen Hunscher, Ph.D.; Martha Koehne, Ph.D.; Catherine Leamy; E. S. Rogers, M.D.; W. H. Sebrell, Jr., M.D.; Dorothy Carter, R. N.; and Marjorie M. Heseltine, Chairman.

I. GENERAL SCOPE OF THE FIELD

It is estimated that there are at least 400 public health nutritionists at work at the present time. Official public health agencies (state, county, and city) undoubtedly lead in the employment of nutritionists with the American Red Cross and its local chapters in second place. Among other health agencies maintaining nutrition service are: visiting nurse associations, community health councils, and tuberculosis associations. Although the war has given impetus to the public health nutrition movement, very few agencies would seem to have built up such large staffs as to point to marked retrenchment with the return to peacetime health programs.

Because of the developments listed above, public health agencies are seeking not only more nutritionists but nutritionists capable of performing specialized functions and of supervising the services of staff workers in positions of lesser responsibility. The original report on Educational Qualifications of Nutritionists in Health Agencies (approved by the Governing Council of the American Public Health Association, October 13, 1941) covered only the type of position most common at that time, namely, that of a consultant who works under the administrative direction of a major division of the health agency and who is largely responsible for the technical content of her program. The report has been widely used by (1) colleges and universities training nutritionists and those arranging public health nutrition curricula; (2) administrators of civil service and merit systems; (3) employers selecting nutritionists, and (4) individuals preparing themselves for service in this field or arranging additional preparation for themselves or their staff.

Although the recommendations have proved helpful, their limitations have become increasingly evident. The subcommittee is agreed that the time has come to act on the implied promise in the footnote to the original report: "This report like all other statements of the Association on professional and

technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought." The recommendations that follow cover the principal types of nutrition positions in the field of public health at the present time. It is impracticable to insist that all present incumbents comply with these requirements; they are recommended for application to candidates applying for appointment.

II. STATEMENT OF FUNCTIONS

A. *The nutritionist in a public health agency* is a qualified professionally trained person who directs or carries on a program of activities dealing with the application of the scientific knowledge of nutrition to the promotion of positive health, the prevention of ill health and the dietary control of disease. The nutrition program of a health agency is directed toward strengthening the service that the agency is rendering in determining the health status of the population served, in dealing with the causes of ill health, in caring for the sick entrusted to its care, and in promoting well-being among groups and individuals through better food practices.

The functions of a highly organized nutrition service of a large health agency will include most; if not all, of the following activities. In smaller health agencies the range of functions will be narrower.

1. *Organizing and carrying out a program to:*

a. Control dietary deficiency diseases through determining their prevalence and distribution and, if they are found to constitute a public health problem of some magnitude, by conducting or participating in clinics for their diagnosis and treatment.

b. Prevent dietary deficiencies and promote health through encouraging wise production or selection and proper processing, preparation, and use of the foods necessary for optimum nutrition. Such programs frequently call for cooperation between the health agency, and agencies and organizations in the fields of agriculture, education, welfare, industry, medicine, nursing, and dentistry.

2. *Studies and surveys:*

a. On prevailing food practices of the population of a given area or of special groups, such as school, children, industrial workers.

b. On cost, availability, and use of foods needed to furnish an adequate dietary, these to be used as guides for setting up nutrition programs.

c. On the nutritional status with respect to certain factors of the population of a given area or special groups, such as residents of a home for the aged.

d. On the effect on nutritional status of modifications in the diet.

e. On the effectiveness of nutrition programs in improving food supplies and practices.

3. *Preparation and assembling of materials* for nutrition education and reviewing the nutrition content of all educational materials prepared or distributed by the agency.

4. *Professional education.* Participation in the field training of public health students and in the orientation and in-service training of the staff of the health agency.

a. Imparting to public health workers and allied personnel a working knowledge of human food needs, nutritive values of foods, and methods of improving nutritional status in cooperation with whatever specialized personnel in nutrition may be available in the area served.

b. Participation in the pre-service and in-service training of nutritionists and of workers in related fields, such as educators, social workers, managers of food service in schools, child care centers, or institutions.

5. *Consultation services* for workers in health or allied agencies in regard to nutritional needs and dietary practices of individuals, families, institutional and industrial groups, or a cross-section of the population of a given area, with the object of planning ways of meeting these needs and improving practices within the resources—actual or potential—of the individuals or groups under consideration.

6. *Individual and group instruction* of adults and children on food, nutrition, and budgeting, in connection with health conferences or clinics or with the educational or service program of the health agency in schools or the agency's program of community education.

7. *Compilation* and, if necessary, preparation of nutritionally adequate food market orders, menu plans, and recipes, adjusted to various cost levels, to racial, religious, or regional food practices, and to individuals in unusual circumstances, such as night shift workers or persons living outside of family groups. Similar service for therapeutic and other special diets recommended by physicians.

8. *Cooperation* with welfare agencies in formulating budget standards for food to meet the nutritive needs of individuals, family groups, and institutions, and in calculating the cost of standard food budgets at prevailing prices.

9. *Inter-agency relationships.* Bringing about closer relationships between the health agency and other agencies carrying on educational, service, or research programs in nutrition.

10. *Coordination of nutrition programs.* Participation in the organization and continuing activity of coordinating councils in the field of nutrition and health and in the organization of communities for unified effort toward the improvement of nutritional status and the maintenance of a satisfactory level of nutrition once attained.

B. *Classification of different grades:*

The nutrition positions in health agencies may be grouped into 3 grades: (1) The director of a nutrition

service in a health agency with responsibility for a staff of workers; (2) the nutritionist who acts primarily as a consultant and neither has responsibility for a staff of workers nor receives close technical supervision; and (3) the staff nutritionist working under close technical supervision from the director of a nutrition service. These grades are described in somewhat more detail in connection with the statements of education and experience under III and IV.

III AND IV. BROAD EDUCATIONAL BACKGROUND (UNDERGRADUATE) AND GRADUATE EDUCATION

A. *For a director of a nutrition service in a health agency with responsibility for a staff of workers.* The essential qualifications for the incumbent of this position are: broad grasp of the science of human nutrition, knowledge of public health administration, and administrative ability. The director cannot be expert in every aspect of public health nutrition but should be able to recruit and supervise a staff that together will possess competence in all the major fields. Directors of nutrition services in health agencies may have acquired the necessary qualifications through any one of several backgrounds of education and experience but these backgrounds will have certain elements in common, as indicated in the following paragraphs:

1. *Education.* Human nutrition should be the subject of major interest. A director of nutrition service should have at least one year of full-time graduate academic credit in addition to the undergraduate academic training leading to a baccalaureate degree or its equivalent in premedical training. The combination should be so chosen as to qualify the student for participation as a nutritionist in the public health field.

Colleges and universities offer graduate training in public health nutrition in professional schools of public health or in postgraduate programs in nutrition based on undergraduate preparation in home economics. The content and extent of graduate study required to supply this training will vary according to the type of undergraduate preparation, the interval since such work was completed, the relevancy of any work experience, and the scope of the program directed.

a. The *undergraduate course of study* leading most immediately to preparation for public health nutrition is that qualifying the student for a baccalaureate degree with a major in foods and nutrition as offered in a course in home economics. Such a curriculum includes as a requirement basic courses in chemistry (including physiological or biochemistry), physiology, bacteriology, the social sciences (economics, sociology, and psychology), human nutrition, food study (selection, marketing, preparation), and educational methods. Electives often include introductory courses in statistics, child development, journalism, and public speaking.

b. Students whose undergraduate major has been in the biological sciences, social sciences, education, or premedical studies, will need to supplement such preparation with the required courses listed above.

c. The minimum of 1 year of *full-time graduate academic study* should feature advanced courses in human nutrition, and together with the undergraduate study should give a working knowledge of: Methods and techniques of nutrition investigations and dietary studies, child hygiene and development, public health administration, health education, principles of supervision, community organization and resources, and social case work.

d. A course in hospital dietetics accredited by the American Dietetic Association is a desirable addition to other types of graduate preparation but is substitutable only insofar as it carries academic credit in courses essential for public health nutrition. Completion of the requirements for a degree as doctor of medicine or doctor of philosophy in biochemistry constitutes adequate educational preparation for the field of public health nutrition when the students have had full courses for academic credit in human nutrition and its applications in the field of public health.

e. Field work in a health agency carrying on a nutrition program under the supervision of a qualified nutritionist should be provided, preferably at the graduate level.

2. *Experience.*[3]

a. Minimum of 4 years of successful, paid experience as a nutritionist in a health agency or a welfare agency carrying on a nutrition and health program. At least one year must have involved responsibility as a supervisor of both professional and clerical staff or as a consultant.

or

b. Two years in the above plus 4 years in any one of the following positions or any combination of them:

(1) Therapeutic or teaching hospital dietitian.

(2) Physician engaged in clinical medicine, teaching of medical students, research, or public health.

(3) Dietitian or nutritionist employed by a food clinic, child development center, school system, nutrition council or committee.

(4) Research worker in human nutrition.

(5) Teacher of foods and nutrition in a school, college, or university, or adult education program.

(6) Agent or food and nutrition specialist in the agricultural extension service or farm security program.

[3] Candidate should have had part of training and experience indicated within 4 years of the time of application.

3. *Substitution of education for experience.*

Each year of relevant graduate study beyond the minimum of 1 year may be substituted for 1 year of experience except that 2 years of the type of experience described under 2a is not substitutable.

4. *Personal qualities.*

a. Executive, organizing, and administrative ability.

b. Physical fitness.

c. Ability to gain confidence of administrators and staff and to win and retain cooperation of co-workers and public.

d. Skill in analysis of situations and in presentation of material.

B. *For a nutritionist who acts primarily in a consultant capacity and neither has responsibility for supervision of a staff of workers nor receives close technical supervision.* The services rendered may be along either of two lines: (1) General consultation to a given area, or (2) service limited to a special field such as consultation in group or institutional feeding, or conducting a program of discovering and controlling nutritional deficiency diseases.

1. *Education.*[3]

a. As outlined in A1 of this section, undergraduate college work and satisfactory completion of the equivalent of at least 1 year of full-time graduate academic credit, chosen in relation to the previously mentioned basic training so as to qualify the student for participation in the public health field. For service in a special field, the graduate work should provide special training. For example, the consultant in group feeding should have majored in institution administration and completed apprentice training approved by the American Dietetic Association in hospital dietetics, institutional management, or industrial feeding, whereas a nutritionist in charge of a program of diagnosis and control of deficiency disease should have had complete medical training.

b. Field work in a health agency carrying on a nutrition program under the supervision of a qualified nutritionist should be provided, preferably at the graduate level.

2. *Experience.*[3]

a. Minimum of 2 years of successful paid experience as a nutritionist in a health agency or a welfare agency carrying on a nutrition and health program,

or

b. One year in the above plus 2 years in any one of the positions listed under A2b or any combination of them.

3. *Substitution of education for experience.*

Each year of relevant graduate study beyond the minimum of 1 year may be substituted for 1 year of experience up to a maximum of 1 year for a general consultant or 2 years for a nutritionist assigned to a research project, or a program requiring medical training.

4. *Personal qualities.*

a. Physical fitness.

b. Executive and organizing ability.

c. Ability to gain and retain confidence and cooperation of fellow workers and public.

d. Skill in analysis of situations and in presentation of material.

C. *For a staff nutritionist working under close technical supervision of a director of nutrition service.*

1. *Education.*[3]

a. Successful completion of courses qualifying for a degree as outlined in A1 (a and b).

b. Field work in a health agency carrying on a nutrition program under the supervision of a qualified nutritionist.

2. *Experience.*[3]

a. One year of successful paid experience in the fields listed under B2 (a or b).

3. *Substitutions for experience.*

a. One year of relevant graduate study may be substituted for 1 year of experience. Or if the agency is in a position to provide systematic orientation and in-service training plus immediate technical supervision from a nutrition director, previous experience need not be required.

4. *Personal qualities.*

a. Physical fitness.

b. Potentialities for developing—

(1) Executive and organizing ability.

(2) Skill in analysis of situations and presentation of material.

(3) Ability to gain confidence and cooperation of fellow workers and public.

[3] Candidate should have had part of training and experience indicated within 4 years of the time of application.

[3] Candidate should have had part of training and experience indicated within 4 years of the time of application.

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LINES WRITTEN IN A HOSPITAL KITCHEN

I work in the kitchen at Lutheran San,
I do the work as good as I can;
I know what the other girls think of me,
But I'm not so dumb as I look to be.

"You scrape the carrots," said Laura to me;
So I scraped them carefully as could be.
But when I got through, they didn't look right,
So I scraped them again with all my might.

Laura came along and gave them a look,
And then from my hand the scraper she took.
She could hardly stop laughing, and I laughed too,
'Cause the scraper, she said, was back-side to!

LAVONNE JONES, Wheatridge, Colorado.
Submitted by Mabelle V. Williams, dietitian, who describes Miss Jones as "a high school girl with pigtails, very quiet."

Editorial

THE ASSOCIATION'S HOUSE OF DELEGATES

The photograph which accompanies this editorial has immediate as well as historical interest for members of the American Dietetic Association, for it portrays the dinner meeting of the House of Delegates in Chicago, October 17, 1945, an event which marked the climax of the two-day conference of this

group who, under the new Constitution, now function as the legislative body of the national organization. The occasion served also as the setting for the granting of the First Annual Marjorie Hulsizer Copher Award.[1]

The majority of those in attendance comprised the delegates from 38 of the 44 affiliated state dietetic associations who were fortunate in being able to overcome the difficulties of travel and hotel accommodations to attend the sessions. Others, seated at the speakers' table to the right of Maniza Moore, President of the Association and Chairman of the House of Delegates, are: Lt. Ruby Motley, who received the award; Henrietta Becker, representing the trustees of Barnes Hospital; Lt. Comdr. Helen E. Walsh, Chairman of the Community Education Section; Dr. Lillian B. Storms (now Mrs. Coover), Vice-President; Marie L. Hines, Secretary; and Millie E. Kalsem, Chairman of the Food Administration Section. At Miss Moore's left are: Dr. Charles S. Davidson, who addressed the gathering on "A Study of Nutrition in Bavaria and Austria"; Mrs. Bessie Brooks West, President-Elect (now President); Anna Reimer, Chairman of the Diet Therapy Section; Mable MacLachlan, Treasurer (now President-Elect); and Dr. Helen A. Hunscher, Chairman of the Professional Education Section (now Vice-President).

Elsewhere, seated at a table in the foreground, are members of the Chicago office staff, including the Executive Secretary and the Educational Director, and Lt. Grace Stumpf, who addressed the House of Delegates on her experiences in the ETO, at an earlier session. In the far background are the 1945–46 Chairmen of the Professional Education and Food Administration Sections, Margaret E. Terrell and Alice M. Fenno; the Editor of the JOURNAL; and the 1945–46 Treasurer of the Association, Beulah Hunzicker.

[1] See p. 703, this JOURNAL for December 1945.

ARMY HONORS DIETITIAN

Under the above caption, the New York *Times* announced on November 17 that the Exceptional Civilian Service Award had been presented on November 16 to Mary I. Barber, Director of the Home Economics Department of the Kellogg Company, "for outstanding work as civilian adviser on nutrition to the Army Quartermaster Corps." The *Times* further stated, "An expert dietitian, Miss Barber toured posts and camps throughout the country and served at the Subsistence Branch, Supply Division at Quartermaster headquarters, from February 1, 1941, until her recent release by the Army."

The citation accompanying the Award to Miss Barber, signed by Robert P. Patterson, Secretary of War, and presented by Major General Carl A. Hardigg of the Quartermaster Corps, read as follows: "In recognition of her exceptional services to the Quartermaster Corps in providing nutritionally balanced diets which contributed greatly to the health and morale of our soldiers in all theaters of operation. Her initiative and judgment in planning the consumption of food in accordance with forecasted surpluses and shortages was an outstanding contribution in maintaining the equilibrium of our national food economy."

Miss Barber, who was 1940–41 President of the American Dietetic Association, was appointed Food Consultant to the Secretary of War and assigned to the task of assisting in the preparation of Army menus in February 1941 at the request of the Quartermaster General. This represented another milestone in the history of the dietitian, for this was the first time a member of the profession had served in the U. S. Army Quartermaster Corps.

According to the release of the Army Service Forces, Office of the Quartermaster General, dated November 13, Miss Barber was responsible for the preparation of the first Master Menu for the Army, and for the many different types of menus required in the various theaters of operation. In addition, Miss Barber supervised the revision of the *Army Cook Book* and the preparation of the many cooking manuals which contributed greatly to the better preparation of food for the Army, resulting in the improved health and morale of the troops. In recognition of her contribution, she was "presented with the highest award that it is possible for civilians to receive from the War Department."

Food, the release continues, has been Miss Barber's lifelong career. Originally from Titusville, Pennsylvania, she traces her interest in good eating back to the culinary traditions of her Pennsylvania Dutch ancestors. This flair for good food, she claims, dictated her education and later, her life work.

On graduating from Drexel Institute in Philadelphia, Miss Barber was appointed dietitian in a Pennsylvania hospital. This led to a position with the Board of Education in Philadelphia where she taught cooking at a high school. When Mayor John Purroy Mitchel sent out a call for home economists to show women how to conserve food during World War I, Miss Barber was one of the first to enroll. By the time the war was over, she had not only won laurels as a demonstrator, but had obtained her degree from Teachers College, Columbia University, where for a number of years she was an instructor in foods and cookery prior to her present affiliation with the Kellogg Company.

Miss Barber's friends in the American Dietetic Association and elsewhere—and they are legion—will rejoice to learn of this further honor which she so richly deserves. Of her it may be said, without quibble or need for further qualification, that she has the attributes of the truly great, the qualities of mind and soul which, amidst all the honors she has received, keep her, as before, the unassuming and friendly, warmhearted woman we have always known.

FURTHER HONORS FOR ARMY DIETITIANS

Word has been received in a news report from the New York State Dietetic Association that Capt. Cathryn VerMurlen was awarded the Legion of Merit on August 27. No further details have been received concerning the citation. Earlier she had received the Bronze Star Medal (*see* p. 161 this JOURNAL for March 1945).

As this issue went to press, announcement of the award of another Bronze Star Medal to an Army dietitian, First Lt. Mary E. Magee, was received from Major Helen C. Burns, Director of Dietitians, Office of the Surgeon General. Lieutenant Magee's citation reads as follows:

"First Lt. Mary E. Magee was awarded the Bronze Star Medal for heroic achievement from 9 Feb. 1945 to 24 Feb. 1945, in connection with military operations against the enemy. As member of an advance medical group, Lieutenant Magee, with other officers, was ordered into a bitterly contested combat zone to provide medical care for approximately 3700 American and Allied civilians suffering from malnutrition and other maladies resulting from long internment at ———, during the enemy occupation. Despite air raids, artillery and small arms fire which inflicted casualties among patients and military personnel, and a lack of water and basic medical and surgical necessities, they strove long and successfully to conserve lives endangered by enemy action. By their high courage, zeal, and selfless devotion to duty, these officers rendered a valuable service in a period of extreme emergency during the ——— Campaign.

Current Comment

THE NUTRITION FOUNDATION RESEARCH PROGRAM

Total grants of $1,041,755 for fundamental research in the science of nutrition have been made by the Nutrition Foundation, and recent research projects under Foundation auspices have already advanced our basic understanding of a number of problems related to public health and the scientific use of foods, according to reports to the Board of Trustees at the Foundation's meeting on November 8, 1945, included in a release dated November 9. Dr. James Bryant Conant, President of Harvard University, was the speaker at a luncheon meeting of the Board.

Dr. Charles Glen King, Scientific Director of the Foundation, reported that the importance of the interrelationship between the 40 or more essential nutrients in maintaining body balance is coming more and more to the foreground, as each nutrient can be identified and studied with greater accuracy. He stated that the grants made by the Nutrition Foundation are aiding in obtaining this newer knowledge of the science of nutrition.

Dr. Conant spoke in part as follows: "To my mind there is no more important undertaking in the educational world today than tackling this problem of teaching science as part of a general education. Until we solve this pedagogic riddle, we cannot make much headway in developing the unified, coherent culture suitable for a free country in a democratic age which we so sorely need.

"We have failed completely in our schools and colleges to give to the future lawyer, economist, business man, or public servant an understanding of the nature of the scientific method as it has actually worked in practice. What we need to develop is a course in science as part of a general education. Such a course might be entitled 'The Tactics and Strategy of Science' or 'Critical Phases in the Advancement of Knowledge in Modern Times.'

"Unfortunately, there are many signs that the public, including some very highly educated and articulate leaders of opinion, are hopelessly confused about the process of advancing knowledge and applying the new knowledge to practical affairs. A prominent writer in science, following the line of thinking of certain British writers, maintains there is no distinction between pure research or fundamental research and applied research. Many comments on the spectacular work which led to the production of the atomic bomb indicate a similar confusion. Now the impact of modern science on society is confusing enough, anyway, without our getting further bogged down by a failure to analyze correctly the nature of scientific and technical work or to assess it properly as a social process.

"To illustrate what I have in mind, let me refer to work on the atomic bomb, for no address today on any subject seems complete without a reference to this subject. It is commonly stated that two billion dollars was spent on research which resulted in the atomic bomb. Such a statement is completely false. The fundamental or basic research which made the atomic bomb possible was all done before any government became actively interested in the matter. It was done by physicists and chemists in laboratories all over the world and it would be my guess, it could not have cost over a few hundred thousand dollars, if that. Yet it was revolutionary. Let me remind you that as late as 1936, after the transmutation of elements by neutrons had been demonstrated in the laboratory with the concomitant release of energy, no less an authority than Lord Rutherford believed that the production of appreciable quantities of energy by nuclear reaction was essentially impossible. It was the work done by a relatively few men with uranium that changed the course of scientific history, and perhaps the history of the world. This was the basic research which cost a few hundred thousand dollars at most, and no one who started on it could have foreseen its revolutionary outcome. This is the important point.

"On the other hand, applied research and development and production which were required for the production of the atomic bomb (and which cost two billion dollars) were aimed at a very definite target. Such work, unlike basic research, can be planned in advance and yields to a mass attack. How important a part the chemical engineer and the production man of industry played in this whole atomic bomb business is still only faintly appreciated by the public. Commentators wrote as though a few hundred physicists in a few laboratories were all that were required. As a matter of fact, a vast mobilization of the greatest technical skill of industry was the prime requisite for success."

New grants approved at the November meeting were the following: Stanford University, $5,000 for a two-year study of the distribution of body protein under changing conditions; Yale University, $5,000 for a two-year study of the chromatographic adsorption analysis of fatty acids and carbohydrates; University of Wisconsin, $10,500 for a three-year study of the effect of dietary components on the requirement of amino acids; University of Toronto, $8,000 for a two-year study of the relation of carbohydrates to inositols; Tulane University, $4,250 to study nutritional anemia in man; University of California, $2,400 for a two-year study of the metabolism of amino acids in the chick; Pennsylvania State College, $10,000 for a two-year study of spectrographic methods of estimating vitamin A and provitamin A; Cornell University, $7,000 for a two-year study of the function of essential nutrients; Duke University, $4,000 for a two-year study of

fatty livers and choline deficiency in the guinea pig; Northwestern University, $12,000 for a two-year study of the human requirements of niacin and related nutrients.

Renewals of grants previously approved included the following: Cornell University, $5,600 to continue studies on the metabolism of proteins; Meharry Medical College, $850 to continue studies on pantothenic acid metabolism; Harvard University, $12,265 to continue research on nutrition education in the public schools; Duke University, $3,600 to continue studies on paralysis in dogs on a B-complex-deficient diet; University of Southern California, $3,000 to continue studies on the intermediary metabolism of carotene; and Washington University, $14,300 to continue studies on the mechanism of carbohydrate reactions in animal tissues.

MEALS TO ORDER FOR THE WOUNDED

Members of the Women's Army Corps at the Wakeman Hospital Center, near Columbus, Indiana, are helping make life a little more pleasant for the wounded American soldiers who still have many months ahead of them in the hospital, according to a release from the Public Relations Office, Wakeman Hospital Center, Camp Atterbury, Indiana. The accompanying photograph, taken in a diet kitchen on the paraplegia ward at this hospital, shows (left to right) Capt. Margaret Richardson, Medical Department Dietitian, Lt. Col. Katharine Goodwin, W.A.C. Staff Director of the Army Service Forces, and four Wacs who serve as Dietitian's Aides.

The thirty or more paralyzed soldiers in the paraplegia ward are permitted to give their food preferences to the cooks, whose special job it is to serve them their favorite dishes. The four Wacs are graduates of a Wac cooking school and they endeavor

to make the meals as much like home-cooked meals as possible.

The morale value of these special meals to the men can be imagined—for they receive their favorite foods as ordered. Steaks and French fries are said to lead in popularity; corn bread is ordered for almost every meal by the men from Kentucky, and southern fried chicken is an all-round preference. All kinds of pies are ordered, but banana cream pie is said to be the favorite.

Appointments, Army Medical Department Dietitians

The following Medical Department Dietitians were appointed in the Army of the United States during the month of November 1945.

Banks, Mary Grace: Univ. of Texas; O'Reilly, G. H., Springfield, Mo.
Bourquin, Martha Jane: Ohio State Univ., R. H., Ft. Bragg, N. C.
Curry, Barbara Jean: Purdue Univ., Ind.; Johns Hopkins Hosp. and Bushnell G. H., Utah.
Dunlap, Frances Eloise: Univ. of Utah; Walter Reed G. H. and Deshon G. H., Butler, Pa.
Fisher, Dorothy E.: Carnegie Inst. of Tech.; R. H., Ft. Bragg.
Gabel, Clara A.: Ball State Teachers Col., Ind., and Purdue Univ.; O'Reilly G. H.
Huff, Madge E.: Purdue Univ.; Johns Hopkins Hosp. and Bushnell G. H.
Hughes, Rosamond Ella: Univ. of Vermont; Fitzsimons G. H., Denver, Colo.
Jones, Neoma Belle: Berea Col., Ky.; R. H., Ft. Bragg.
Kittams, Marguerite Jessie: Montana State Col.; Fitzsimons G. H.
Lehman, Margaret Elizabeth: Cornell Univ.; Johns Hopkins Hosp. and Bushnell G. H.
Maynard, Nancy M.: Cornell Univ.; Johns Hopkins Hosp. and Bushnell G. H.
Powell, Jessy R.: Univ. of Arizona; Alameda County Hosp. and Hammond G. H.
Rogers, Lela Roanoke: Southern Mississippi Col.; O'Reilly G. H.
Watcke, Beatrice Margaret: Russell Sage Col.; Fitzsimons G. H.

Promotions, Army Medical Department Dietitians

The following Medical Department Dietitians were promoted during the month of November 1945. They are on duty in Army hospitals in this country and overseas.

Second Lieutenants to First Lieutenants

Bass, Ann Louise, R-1350
Bone, Roberta Keach, R-1242
Farrell, Monica, R-1188
Finnegan, Grace Kathryn, R-1281
Foin, Louise Chen, R-1208
Garrison, Myrta Elizabeth, R-302
Goldberger, Beatrice, R-1331
Gonnella, Arline Ann, R-1032
Hagan, Gladys Catherine, R-2037
Hanley, Betty Ann, R-1359
Hebert, Mary Louise, R-1337
Hinton, Mary Ellen, R-1352
Higgs, Meda Lavelle, R-1391
Horton, Emily Gertrude, R-1383
Horton, Lucille Gertrude, R-1052
Kleffner, Rita Frances, R-1137
Lanier, Ruth Cheshire, R-1337
LaRaut, Althea, R-1133
Loe, Vivan E., R-859
Meggers, Ann Mitchell, R-1358
Scheier, Genevieve Estella, R-838
Tunnell, Teresa, R-1371
Ulrich, Virginia Louise, R-2187
Williams, Dorothy Jean, R-1135
Williams, Ruth Marie, R-1375
Yule, Eileen Marietta, R-1275

Army Medical Department Dietitians Separated From the Service[1]

The following dietitians have been separated under the provisions of the Separation Policy established by the Surgeon General for Medical Department Dietitians.

Captains

Braveman, Rosalie N., R-202, 725 McIndoe St., Wausaw, Wis
Davis, Mary, R-387, P.O. Box 375, Jensen, Fla.
Durbin, Catherine C., R-324, Gillsville, Ga.
Eyl, Ann Beatrice, R-318, 124 N. Broadway Park, Lexington, Ky.
Hoag, Mary Jane, R-550, 391 W. Michigan Ave., Battlecreek, Mich.
Llewellyn, Pearl Ellen Holmes, R-457 406 Joy St., Red Oak, Iowa.
Wagner, Florence Evelyn, R-186, 588 Washington St., Prairie d'Sac, Wis.
Wilson, Elizabeth Kerr, R-293, 392 N. Washington St., Battlecreek, Mich.

First Lieutenants

Abrams, Selma, R-738, 220 Ave. N., Brooklyn 30, N. Y.
Albert, Dawn Lorraine, R-920, R.R. 1, Artesia, N. M.
Adams, Myra Chrystene, R-668, Jasper, Texas.
Adler, Margaret L., R-857, 1005 Oak St., Miles, Mich.
Aitcheson, Catherine, R-867, Brickhouse Farm, Laurel, Md.
Anacker, Marguerite, R-604, 1228 N. 21st St., Milwaukee.
Archer, Buelah Kalbfleisch, R-1120, R.R. 2, Fiber, Idaho.
Arnold, Norma Ruth, R-885, 494 Warner Ave., Logan, Ohio.
Bailey, Virginia Meredith, R-709, Newport, Minn.
Baldwin, Ruth E., R-642, Manhattan, Kans.
Balkema, Charlotte Lenore, R-436, Sheldon, Iowa.
Barr, Blessing Hannah, R-322, 382 S. Center St., Orange, N. J.
Bemmels, Murlies A., R-913, Independence Blvd., New Brunswick, N. J.
Bitzer, Elizabeth Elsie, R-224, 73 Schley Ave., Pittsburgh.
Blacher, Sylvia Thelma, R-516, 24 Newell Ave., New Brunswick, N. J.
Boehm, Betty, R-508, 524 N. Main St., Wallingford, Conn.
Bolton, Betty Jane, R-473, R.R. 3, The Dalles, Oreg.
Bowen, Mildred Emma, R-113, Meadville, Pa.
Boyett, Erna Lowell, R-1169, Box 371, Hollis, Okla.
Brannon, Dorothy McLaurine, R-598, 72 Windemere Ave., Landsdowne, Pa.
Brillhart, Ruth M., R-972, 840 Packard Drive, Akron, Ohio.
Brown, Thelma Adeline Fisher, R-420, 3973 N. Montana St., Portland, Oreg.
Buchanan, Jean Louise, R-1029, 3428 Olive St., Kansas City, Mo.
Carter, Mary Margaret, R-963, 2305 Broadway, Lubbock, Texas.
Casey, Alice L., R-618, 109 Gordon Ave., Carbondale, Pa.
Champlin, Maurine G., R-100, 724 Saskatchewan Crescent, Saskatchewan, Canada.
Chapman, Emma, R-818, 418 11th Ave., Salt Lake City.
Cisne, Ida M., R-493, Cisne, Ill.
Clark, Grace Lillian, R-568, 422 Melrose St., Iowa City.
Clayton, Pauline Marie, R-490, 269 Nelson Rd., Scarsdale, N. Y.
Cleghorn, Elizabeth, R-421, 219 Hight St., Klamath Falls, Oreg.
Coates, Olive M., R-720, Veterans Administration, Ft. Bayard, N. M.
Cohen, Miriam, R-1144, 92 Christopher St., New York.
Corbett, Nina Leolian, R-1090, 226 Morgan St., Marion, N. C.
Cox, Lockie, R-374, Floyd, Va.
Cox, Marion Margretta, R-326, Carbondale, Pa.
Coyle, Margaret Veronica, R-263, 73 Cleveland Ave., Newark, Del.
Curley, Alice Clare, R-765, Scranton, Pa.
David, Ruby Darleen, R-950, Mart, Texas.
Dienstein, Isabel, R-708, 717 Center St., Taft, Calif.
Donaldson, Marion May, R-631, 28 N. 22nd St., Corvallis, Oreg.
Dreyer, Dorothy M., R-226, 3427 N. Murray Ave., Milwaukee, Wis.
Drone, Kathryne R., R-866, Ridgeway, Ill.
Dytman, Alberta Esther, R-701, 522 Liberty St., Elmira, N. Y.
Eggleton, Clare Patricia, R-137, Milton, Mass.
Eicher, Dorothy Jane, R-330, 1127, 10th Ave. N., Seattle, Wash.
Elliott, Etta May, R-853, Palaskala, Ohio.
Ells, Dorothy Marie, R-157, 1276 Lincoln Blvd., Freeport, Ill.
Englund, Ruth, R-1191, 1345 Madison St., Denver 6.
Fall, Hilda M., R-14, 5 N.E. Despain, Pendleton, Oreg.
Farrell, Aileen Margaret, R-752, 1256 Hood Ave., Chicago.
Ferguson, Irene, R-746, 70 West 77th St., N. Y.
Fisher, Marion Elizabeth, R-112, 43 Summer St., Northampton, Mass.
Fitch, Ruth Clep, R-909, 22 Winter St., Lancaster, N. H.
Fizdale, Jane Harriet, R-1223, 2838 N. 28th St., Milu, Wis.
Flaherty, Betty Frances, R-754, 801 S. 3rd West, Missoula, Mont.
Fleming, Jean L., R-846, 280 Richton Ave., Highland Park, Mich.
Fogg, Dorothy Elizabeth, R-781, Hanover, N. H.
Foley, Martha Elizabeth, R-438, 97 Lowell Rd., Winthrop, Mass.
Fox, Catherine L., R-134, 643 S.W. 1st St., Miami, Fla.
Franck, Phyllis Irene, R-37, 14790 E. 14th St., San Leandro, Calif.
Friedman, Helen, R-128, 195 Underhill Ave., Brooklyn, N. Y.
Gardner, Mary Clare, R-102, 23 Varnum St., Worcester, Mass.
Gay, Flora Wiley, R-253, 622 Noreland Ave., N.E., Atlanta, Ga.
Gemmill, Elizabeth Jackson, R-15, 563 Congress Ave., Havre de Grace, Md.
Ginn, Arlene D., R-237, R.R. 2, Fosston, Minn.
Goldberg, Hanna Frances, R-118, 16 N. Market St., Shamokin, Pa.
Goodman, Elizabeth, R-795, 300 N. 5th St., Indianola, Iowa.
Graham, Clarabel, R-145, Laris, S. C.
Green, Sara J., R-495, 513 N. Washington St., Alexandria, Va.
Griffin, Lucile Scott, R-500, Sanford, N. C.
Groves, Adelaide Rebecca, R-133, 1611 Bloom St., Lexington, Mo.
Hagerty, Florence B., R-551, 714, 23rd St., Sacramento, Calif.
Harman, Thelma A., R-957, 930 Ratone St., Manhattan, Kans.
Harris, Joanna Sharp, R-1076, 15 Pleasant St., Milo, Maine.
Harrison, Estelle Eames, R-620, 906 Walnut Ave., Baltimore, Md.
Hartquest, Mary Amelia, R-305, 1004 K St., Aurora, Nebr.
Hartt, Catherine Irene, R-54, 103 W. Maple St., Rawline, Wyo.
Haskin, Beth A., R-702, R.R. 3, Everett, Wash.
Hatfield, Cathryn Jean Bacon, R-804, Lorimor, Iowa.
Healey, Marjorie Bates, R-401, 34 Summer St., Weymouth, Mass.
Heilmann, Katherine Rice, R-594, 2515 University Ave., N. Y.
Heim, Dolores M., R-935, Edgeley, N. D.
Hellick, Mae B., R-47, 620 Porter St., Easton, Pa.
Henderson, Hildegard, R-188, 1146, 12th St., Boulder, Colo.
Henningsen, Nell N., R-312, Newell, Iowa.
Hershey, Miriam Adele, R-1092, Peerless Orchards, Hamburg, Pa.
Holt, Gertrude Anna, R-817, Cleveland, Okla.
Hunt, Ann McCurdy, R-986, Cuero, Texas.
Hunt, Nellie Virginia, R-1047, Paris, Ky.
Hurka, Eleanor Mae, R-791, 2314 Gunderson Ave., Berwyn, Ill.
Jaynes, Winifred, R-525, 117 Chatham St., Chatham, N. J.
Jensen, Helen F., R-203, Coon Rapids, Iowa.
Johnson, Alta Brown, R-197, 433 Lakeshore Drive, N.E., Atlanta, Ga.
Johnston, Eleanor Irene, R-1030, 210 Lobinger Ave., North Braddock, Pa.
Jones, Frances Cardozo, R-676, Box 13, Hamilton, Ohio.
Jones, Lila M., R-9, 64 Raymond Ave., Rockville Center, N. Y.
Jordan, Gladys E., R-468, Valentine, Nebr.
Kaiser, Dorothy Mary, R-907, 609 Acoma St., Needles, Calif.
Kalcevic, Frances Barbara, R-661, 4460 Logan, Denver.
Kaufmann, Marthaross, R-989, 357-45, 93rd Ave., Bellrose, Long Island, N. Y.
Knearl, Velma Margaret, R-534, Alexandria, La.
Knudson, Pauline Barrows, R-557, 207 S. Main Ave., Albany, N. Y.
Koerting, Rebecca K., R-310, 1918 Holdrege St., Lincoln, Nebr.
LaForge, Laviana Laurie, R-812, 1715 Richmond St., Hopewell, Va.
Lagerholm, Beatrice, R-22, 46 Haig Ave., Bristol, Conn.
Langdon, Dorothy Juanita, R-94, Crosby, Texas.
Larson, Melvina Ada, R-229, 1445 Sheldon St., St. Paul, Minn.
Lawson, Miriam Claire, R-833, 203 S. Tampa St., Boone, Iowa.
Ledbetter, Ruby Elizabeth, R-951, Dyersburg, Tenn.
Lee, Hermien Ruth, R-636, 120 S. Grant St., Clinton, Ill.
Lemke, Doris Eileen, R-345, 305, 5th St., Devil's Lake, N. D.
Leonard, Helen George, R-786, 1122 Montauk Ave., Mobile, Ala.
Levine, Alizah R-633, 206 E. 15th St., New York.
Levis, Grace Cook, R-657, 707th St. Johns' Rd., Baltimore.
Lindberg, Virginia E., R-29, 1103 A Ave., E., Oskaloosa, Iowa.
Little, Anne Ellen, R-333, Apt. 1, 140 Main St., Boise, Idaho.
Lloyd, Althea E., R-167, 1300 Willow Ave., Louisville, Ky.
Love, Lorraine M., R-864, 304 N. Cass Ave., Oberlin, Kans.
Madzik, Olga, R-1228, 45 Hobart St., Meriden, Conn.
Maertens, Helen Mary, R-346, 1244 Lakepointe St., Grosse Pointe, Mich.
Magee, Mary Ruth, R-77, Box 582, Monterey, Calif.
Manford, Edith K., R-761, 26 Rhode Ave., St. Augustine, Fla.
Marden, Dorothy Fisher, R-162, 4218 Lombard St., Duluth, Minn.
Martin, Ruth Stevens, R-522 Ft. Bayard, N. M.
Mattison, Doris Feldman, R-205, c/o Carl Feldman, Doniphan, Neb.
McCle land, Esther L., R-887, 325 Elmira St., Troy, Pa.
McClelland, Ruth Winifred, R-619, 46 Swarthmore Ave., Hamden, Conn.
McCorkle, Florence Bradley, R-249, 328 Sylvan Ave., Bessemer, Ala.
McIntyre, Elizabeth Jane, R-759, 480 Elm St., Norman, Okla.
McLaughlin, Mary Frances, R-651, 418 N. Broadway, Greensburg, Ind.
Mead, Ida M., R-659, Red Creek, N. Y.
Meyer, Alice L., R-855, E. 8001 Fairview St., R.R. 5, Spokane, Wash.

[1] *Editor's Note:* Attention is again called to the statement in the address of the President on p. 683 of this JOURNAL for December 1945 and to that of the President-Elect (now President), Mrs. Bessie Brooks West, in this issue, concerning the Placement Bureau and other services of the Association which are available to Army dietitians on their release from the Army.

Miller, Mary Margaret, R-801, 516 E. Central Ave., Orlando, Fla.
Milsom, Alice, R-1275, 1255 Atherton St., State College, Pa.
Monthey, Esther Wellington, R-645, 218 Spruce Ave., Takoma Pk., Washington, D. C.
Moore, Marian E., R-748, Clio, Mich.
Moore, Marie Whitman, R-609, Box 505, Belmont, Calif.
Mournigham, Frances M., R-116, 138 E. 7th, Oswego, N. Y.
Muller, Carla F., R-78, 205, 10th Ave., Council Bluffs, Iowa.
Murray, Marguerite Ruth, R-868, 2620 Hemlock, Vancouver, B. C., Canada.
Nelson, Florence Ruth, R-602, Sedgwick, Colo.
Nesler, Ruth A. M., R-200, 1620 Lawndale, Dubuque, Iowa.
Nichols, Ruth Virginia, R-63, 3420 Woodland, Ames, Iowa.
Nusbaum, Mary Florence, R-426, Park Falls, Wis.
Olson, Josephine M., R-2006, 4437 Bryant Ave., S. Minneapolis, Minn.
Olson, Ruth Marion, R-1014, Sharon, N. D.
Owens, Velma Portia, R-149, 2947 Boulevard Pl., Indianapolis.
Park, Helen Elizabeth, R-104, 21 Willetts Rd., Mt. Kisco, N. Y.
Parr, Vivian R., R-733, 2007 N. 48th Ave., Omaha, Nebr.
Perkins, Helen C., R-767, 921 Quindaro Blvd., Kansas City, Kans.
Perlmutter, Ida, R-283, 11 Garwood St., S. River, N. J.
Pilny, Marta Arlene, R-261, Plains, Pa.
Plotkin, Sylvia, R-418, 965, 53rd St., Brooklyn, N. Y.
Porter, Rose, R-223, c/o Mrs. E. Henning, Joppa, Md.
Pottschmidt, Helen F., R-1339, Wagner, S. D.
Queneau, Marguerite Jeanne, R-715, 19 Elberon Place, Albany, N. Y.
Ragsdale, Eloise, R-783, Foster St., Memphis, Tenn.
Reams, Ruth Arlene, R-597, 162 Manchester, Battle Creek, Mich.
Reardon, Frances Eileen, R-355, West Medford, Mass.
Reddick, Maedelle Morgan, R-512, Vienna, Ga.
Reid, Eileen M., R-28, 9 Kent St., Brookline, Mass.
Reinhart, Frances V., R-2047, 128 Clifton Place, Syracuse, N. Y.
Renshaw, Elizabeth M., R-439, 6845 Hollenbach St., Huntington Park, Calif.
Reynolds, Caroline T., R-896, Doylestown, Pa.
Riley Winifred G., R-1212, 541 Maple Ave., Teaneck, N. J.
Rogers, Jane Ellen, R-851, 2104 Eastern Ave., Cincinnati.
Root, Florence L., R-89, Dows, Iowa.
Rork, Ellen Eloise, R-352, 6656 Clayton Rd., St. Louis.
Rowe, Phyllis Ruth, R-1041, 1130 9th St., N. Fargo, N. D.
Rudisill, Helen Pauline, R-796 Marshall, N. C.
Russell, Flora Huntly, R-175, c/o Mrs. R. C. Syvertsen, Loveland Rd., Norwich, Vt.
Saluri, Mary Aimone, R-946, c/o Mrs. G. Aimone, Derry, Pa.
Sather, Marion Ruth, R-892, Fooston, Minn.
Schaufelberger, Emilie Bee, R-527, Bellevue, Idaho.
Schumaker, Lois Mary, R-792, 2537 Prairie St., Chicago.
Scoltock, Mary Elizabeth, R-217, Covina, Calif.
Seckinger, Gertrude R., R-1051, N. Shore, Clark Lake, Mich.
Seeley, Mary Lou, R-270 Owosso, Mich.
Seelye, Katherine L., R-465, 76 Hull St., Coldwater, Mich.
Shamburger, Elizabeth, R-741, The Pines, Star, N. C.
Sherwood, Mary Abbie, R-875, Wyaconda, Md.
Siegel, Rosalyn, R-111, 2113 Humboldt Blvd., Chicago.
Sleeman, Ruth A., R-1247, 289 East Main St., Frostburg, Md.
Snowdon, Doreene N., R-1004, R.R 1, Windom, Minn.
Soderholm, Mable M., R-579, Laurel St., Wahoo, Nebr.
Solbach, Madeline M., R-297, 921 South Coast Blvd., La Jolla, Calif.
Son, Ruth Mary, R-556, 208 W. 22nd St., Cheyenne, Wyo.
Soule, Thelma Elaine, R-882, 1412 Third Ave. W., Seattle.
Sparkman, Margaret Katharyn, R-1001, R.R. 1, Dade City, Fla.
Speak, Gertrude Marie, R-368, 1930, 3rd St., East Moline, Ill.
Stanley, Elise Topliff, R-930, Northboro, Mass.
Stephany, Edna Amelia, R-45, 40 First St., Lynbrook, N. Y.
Stuthelt, Elizabeth Janet, R-734, R.R. 2, Fayetteville, Ark.
Suthard, Isabelle A., R-2086, Hugo, Minn.
Swecker, Celia Pearl, R-1353, 4201 Crestwood Rd., Richmond, Va.
Sweeney, Mary H., R-195, 2317 S. 27th St., Lincoln, Nebr.
Swenson, Gladys Bernice, R-844, 4115, 21st Ave., S. Minneapolis, Minn.
Szegedy, Helen Pace, R-141, Box 151, Safford, Ariz.
Tauber, Roslyn L., R-496, 402 Ocean Parkway, Brooklyn, N. Y.
Thompson, Mary P., R-497, R.D. 2, Colton, Wash.
Thompson, Willa May, R-843, Belwood, Canada.
Tidmarsh, Marguerite H., R-487, Whitmire, S. C.
Tilley, Mary F., R-897, 3648 Zumstein St., Cincinnati.
Tripp, Virginia Agnes, R-42, 10 Willard Ave., Pocantico Hills, Westchester, N. Y.
Vecker, Doris Mary, R-398, Milwaukee.
Villinger, Hazel Warren, R-731, Box 1096, R.R. 1, Vesta, Calif.
Waddell, Irene Hope, R-286, Box 52, Enumclau, Wash.
Wagner, Virginia Fessenden, R-315, Buckingham Valley, Pa.
Walker, Georgia L., R-943, 445 Wooster Rd. N., Barberton, Ohio.
Wallace, Jessie Lorine, R-1097, 115 Lynn St., Ames, Iowa.
Wanbaugh, Virginia E., R-501, 4000 4th Ave., S. Birmingham, Ala.
Wang, Dorothy Lucille, R-1054, 3173 N. 55th St., Milwaukee 10.
Ward, Nellie Ruth, R-31, 322 W. Magnolia Ave., Auburn, Ala.
Warner, Virginia Maher, R-1067, 800 W. South St., Salina, Kans.
Weinman, Helen V., R-790, 330 Union Ave., Steubenville, Ohio.
Whalen, Marion Catherine Jean, R-73, Longdon, N. D.
Whitney, Adah Elizabeth, R-367, 51 Putnam Ave., Pittsfield, Mass.
Wilcox, Lola Grace, R-865, Box 82, R.R. 1, Corpus Christi, Texas.
Wilks, Helen Marie, R-623, Tuscaloosa, Ala.
Williams, Doris Naomi, R-216, St. Lawrence, S. D.
Williams, Helen E., R-311, 42 Jefferson St., Newman, Ga.
Williams, Ruth Marie, R-1375, 3007 W. 71st St., Seattle.
Williams, Sarah Frances, R-728, 1847 W. 42nd St., Los Angeles.
Wing, Shirley M., R-1162, 14 Northampton St., Easton, Pa.
Wood, Alice L., R-1059, R.D. 3, Red Creek, N. Y.
Wood, Mary C., R-88, Theological Seminary, Alexandria, Va.

Second Lieutenants

Anderson, Elizabeth Daley, R-2003, 1315 E. Olive St., Seattle.
Axtell, Eunice Mae, R-2352, Star Route, Bozeman, Mont.
Baker, Anita, R-906, Apelika, Ala.
Beckman, Katherine Ann, R-889, Muskogee, Okla.
Berkowitz, Marion J., R-2253, 6081 Broadview Rd., Cleveland, Ohio.
Blank, Eleanor Jane, R-2164, R.D. 2, Lorain, Ohio.
Brueske, Marjorie Lyda, R-2083, Ambrose, N. D.
Cohen, Ruth Yarshower, R-2129, 8020 Broadway, Elmhurst, Long Island, N. Y.
Crosby, Ida Moss, R-2005, 12 Patio De Leon, Ft. Meyers, Fla.
Donlin, Clara A., R-1427, 349, 6th Ave. S., St. Cloud, Minn.
Donovan, Rita Catherine, R-635, 4840 Wrightwood Ave., Chicago.
Duncan, Clara Newsom, R-1279, 94 Manchester Terrace, Springfield, Mass.
Dykes, Juanita Wilkins, R-2300, 113 N. Orange Ave., Leesburg, Fla.
Eshelman, Helen Bonner, R-499, 905 Johnson, High Point, N. C.
Fitzhugh, Margaret W., R-1150, 99 Maple Lane, Richmond, Va.
Fogarty, Margaret Charlotte, R-1145, 322 Delaware Ave., W. Pittston, Pa.
Gillson, Helen Jo, R-899, Edison, Ohio.
Godden, Mary Elizabeth, R-768, Emerson Hill, Staten Island, N. Y.
Grambsch, Ruby Lenore, R-303, Loyal, Wis.
Haxel, Eileen Elizabeth, R-2332, 921 Hackette St., Beloit, Wis.
Heath, Charlotte Elizabeth, R-1425, 7 Grand St., W. Haven, Conn.
Henke, Evelyn Catherine, R-2026, 400, 11th St., Oakmont, Pa.
Jarvis, Margaret, R-2350, Box 281, R.R. 1, Gilroy, Calif.
Jones, Abagail Davis, R-1278, 585 S. University St., Blackfoot, Idaho.
Katz, Hilda, R-16, 1205 College Ave., New York.
Kingrey, Clara Ella, R-1037, R.D., Scottown, Ohio.
Koubanis, Philomena A., R-2324, 16 Westley St., Newport, R. I.
La Grave, Jeanne, R-2152, Minnewaukan, N. D.
Landau, Nettie A., R-1306, 1034 N. Henderson St., Galesburg, Ill.
Lanier, Ruth Cheshire, R-1357, 1223 E. Henry St., Savannah, Ga.
Levy, Lucile Waite, R-2353, 2183 Ferndell Place, Los Angeles.
Limmax, Mary Jane, R-2133, R.R. 2, Coronna, Mich.
MacKellar, Rose Marie, R-190, 407 E. Kieth St., Norman, Okla.
Marsh, Grace Truman Burford, R-2322, 128 East Union St., Minden, La.
Mathews, Marjorie Jean, R-2032, 1702 Walker Rd., Grand Rapids, Mich.
Moore, Ouida, R-194, 708 Royal St., New Orleans.
Morris, Thelma LaVone, R-2237, 425 N. 15th St., San Jose, Calif.
Negrette, Katherine Stevens, R-2325, Odessa, N. Y.
Oliver, Audrey Virginia, R-340, 306 Prospect St., La Jolla, Calif.
Park, Lillian Elizabeth, R-2272, Essex County Hosp., Cedar Grove, N. J.
Pietrusz, Wanda Theresa, R-1042, 4052, 18th St., San Francisco.
Riggs, Dorothy Jean, R-1416, 695 E. Claremont St., Pasadena, Calif.
Roberts, Elizabeth Egolf, R-558, E. 11th Mayfield Place, Metuchen, N. J.
Robinson, Jeanne Dora, R-2233, 123 Grand St., Burlington, Iowa.
Schechter, Muriel, R-675, 211 Keap St., Brooklyn, N. Y.
Sireom, Elizabeth Blanche, R-1344, 5 Crawford Park, Tuckahoe, N. Y.
Sittel, Clementine, R-1005, McAlester, Okla.
Sneller, Emelia Elizabeth, R-1089, 7725 Lem Turner Rd., Jacksonville 6, Fla.
Snow, Nydia I., R-2296, 407 5th St., N.E., Payallup, Wash.
Staknaker, Barbara C., R-1370, 52 W. 26th St., Indianapolis.
Swartz, Dorothy Louise, R-461, 523 East 26th Place N., Tulsa, Okla.
Szyman, Jean Genevieve, R-472, 42 Elm St., Claremont, N. H.
Thompson, Florence Ann Schutze, R-2267, 2701 Gallatin Rd., Nashville.
Vollbracht, Harriet Zoe, R-2105, 926 69th St., Kenosha, Wis.
Zaretzky, Bella L., R-573, 1411 Clinton Ave., New York.

Book Reviews

Pattee's Dietetics. By Alida Frances Pattee. Twenty-third edition. Revised by Hazel E. Munsell, Ph.D., and others. New York: G. P. Putnam's Sons, 1945. Cloth. Illustrated. Pp. 736. Price $3.50.

Friends of the late Alida F. Pattee, a pioneer in the writing of textbooks on dietetics for nurses, will be glad to know that the revision of her twenty-third edition was placed in such competent hands. In addition to Dr. Munsell, two other prominent members of the American Dietetic Association, Doris Johnson, Teaching Dietitian and Ward Supervisor, Presbyterian Hospital, and Henderika J. Rynbergen, Assistant Professor of Sciences, Cornell University and New York Hospital School of Nursing (both of New York), assisted in the revision, along with a group of eighteen distinguished physicians.

Especially interesting is the fact that Part I, "Principles of Nutrition," has been entirely rewritten and many new illustrations replace those in previous editions. Under Part II, "Diet Therapy," the well-organized introductory chapters bespeak the careful attention they have obviously received from experienced dietitians. Those which follow, on specific conditions or diseases, have generally been written, revised or approved at a recent date by medical authorities in each field, or have been prepared or revised by dietitians. Three of such chapters, on diet in pregnancy, infant nutrition, and the feeding of young children, are by Martha Nelson Lewis. Tables of food composition, it is also stated, have been completely revised to conform to recent findings in nutrition research and tables of food composition compiled by the U. S. Department of Agriculture and the National Research Council's Committee on Food Composition. Much of this material is available in no other book. All tabular material in the Appendix has been completely revised and several new tables have been added.

Dietotherapy. Clinical Application of Modern Nutrition. Edited by Michael G. Wohl, M.D. Foreword by Russell M. Wilder, M.D. Philadelphia: W. B. Saunders Company, 1945. Cloth. Illustrated. Pp. 1029. Price $10.

Not so long ago, in a leading medical publication we saw an advertisement picturing a physician in his shirtsleeves who, judged by his expression and his comfortable pose, was prepared to spend the morning if not the whole day teaching a housewife, leaning expectantly across the kitchen table, how to calculate and measure a diet. Either he had time on his hands, or had never heard of, or could not find, a dietitian. Be that as it may, this physician would have to plow through the first 600 pages of Wohl's *Dietotherapy* to discover, in the fine print of a footnote to a table, what every doctor should know, that dietitians devise normal and special diets in up-to-date hospitals and other institutions.

Not always, however, is sufficient credit given to the dietitian for her contribution to this important field of applied nutritional science and diet therapy. It should not be surprising, therefore, to find that of the 58 contributors to the book under review which is devoted exclusively to the subject of food as a tool in medical therapy, not one is a dietitian. True, not all the contributors are physicians, a few are men and women well known in nutrition research and as college instructors in nutrition.

In the Foreword, under "Dietetics," Dr. Wilder stresses that therapeutic diets "all too frequently have been planned shortsightedly, with resulting neglect of the long time interests of the patient." He implies that the disease, rather than the patient, has been treated, as in diabetes, allergies, and peptic ulcer. He admits that many diet therapy regimens for these, as prescribed by physicians, have succeeded in superimposing deficiency disease upon the condition for which the patient is being treated and he states, moreover, that "some evidence suggests that allergy itself may be occasioned by unbalanced diets." Yet only ten of the book's 1000 pages are exclusively devoted, and rather sketchily at that, to the normal diet, with two of the pages taken up by metabolic graphs which are of somewhat academic interest to the average general practitioner. It is well to say that the patient "must be given dietary instruction in a form that indicates it is intended specifically for him," but nowhere is the reader told exactly how to go about doing this. The chapter headed "Nutrition, Income, and Budgeting" is chiefly concerned with the economic aspects of the problem, and incidentally does serve to show how misleading a cut-and-dried taking and reading of a diet case history can be.

The dietitian, however, as well as the physician who has the time, the interest, and the background to absorb a refresher course in advanced nutrition, will find the following chapters excellent indeed: those on physiology of the gastrointestinal tract as this relates to nutrition, water metabolism, the role of carbohydrates and that of fats in the diet, the trace elements in nutrition, and the chapters on the minerals and the vitamins. Each subject is presented by a recognized authority.

A study of all this will give the physician we left in the kitchen a good background in the science of nutrition, but he will still lack what is equally important if all the well-thought-out theories presented are to be put to work—*i.e.*, a sound background in applied nutrition, dietetics, which will withstand any kitchen grilling by the patient or his cook.

Part II, "Nutrition in Periods of Physiologic Stress," includes a thorough and practical chapter on nutrition in pregnancy, one on nutrition in infants and children, which unfortunately does not adequately cover the nutrition of children beyond babyhood, a chapter on nutrition in the aged, and one on nutrition in relation to infection and immunity which includes the latest theories on the subject. The chapter on nutrition and the athlete seems to be too heavily weighted with rule-of-thumb opinions of coaches and trainers and includes, in a sample week's menus for the athlete in training, four of what the dietitian would term typical carbohydrate breakfasts, also fruit jello as a dinner dessert three times!

Part III, "Nutrition in Disease," opens with the controversial subject of nutrition in relation to dentistry and includes some specific dietary advice quoted from Boyd and Drain and a thorough coverage of the literature.

Next comes "Nutrition in Digestive Diseases," to which several specialists contribute. Here we read that "to treat dyspeptics of this sort [the nervous type], the physician must be both dietitian and psychoanalyst to a very consider-

able degree. He must know the elements of nutrition, have a simple textbook knowledge of the nutritional values of meats, vegetables, and cereals; and though he need not know how to cook, he should be able to say what cream soup is and tell how to make beef tea or how long to cook rice, when asked." (We had thought beef tea went out with the hoop skirt.) A sample diet for the "nervous" dyspeptic allows turnips, onions, boiled "white" cabbage or cauliflower. Yet on p. 674 (*re* flatulence) these foods are contraindicated, and on p. 870 a dietitian's list of contraindicated foods—*i.e.*, those that "produce gas or dyspepsia"—includes onions, turnips, and "overcooked" cabbage and cauliflower.

Elsewhere in the chapter on digestive diseases, the bald statement is made by another author that "individuals who tend to obesity may keep down their weight by smoking large numbers of cigarettes." Further along, under cirrhosis of the liver, it is interesting to note that alcohol is largely disproved as a causative agent, faulty diet being held responsible for the larger incidence.

Not until p. 596 is reached does the first carefully calculated diet appear, with a credit line to a dietitian, and with the food items stated in definite amounts, understandable to any physician or patient. Continuing from this point the majority of the dietary calculations accessory in the treatment of disease carry credit lines to dietitians, including Margaret M. Mason, Elizabeth Hilf, Rosina Vance, Sister Victor, and Elizabeth Perry. Incidentally, in one chapter, "Nutrition in Infectious Diseases," Miss Perry is given credit for *all* the diets used.

In the chapter on nephritis we note the following statement, with no further explanation: "For the nephritic, the quantity of protein is important, not the quality. In fact, he needs red meat since the diet given him is usually low in iron." The chapter on urologic diseases, excellent as it is, might be more immediately useful if sample acid-ash, alkaline-ash, and purine-low diets were included.

Chapters in Part III of greatest value to the dietitian include those on digestive, urologic, cardiovascular, and skin diseases, and those on care of surgical patients.

The few weaknesses mentioned above, which might lessen the book's usefulness for the average physician who must double as his own dietitian, would not apply of course to the dietitian reader. The latter, therefore, will find the book on the whole a useful means of keeping abreast of current and authoritative medical opinion and practices in the field of diet therapy. The publishers deserve credit, too, for a good job of printing and proofreading.

Elements of Foods and Nutrition. By Mary T. Dowd and Alberta Dent. Second edition. New York: John Wiley & Sons, Inc., 1945. Cloth. Pp. 357. Price $2.25.

The second edition of this textbook for senior high school students has been rewritten and enlarged to include the advances of the past eight years in the science of nutrition, including discoveries concerning the vitamins and minerals, techniques for determining nutritional status, and the setting up of nutritional standards by the National Nutrition Conference. The plan of the book has been changed to that of unit organization. Questions and activities are included at the close of each chapter and, as before, the book is well illustrated. The stated aim remains the same—"guidance in the acquisition of necessary knowledge concerning food and nutrition and the establishment of good food habits."

The treatment of the scientific aspects of the subject is indeed thorough, and students who are able to absorb and retain the semitechnical discussion in Unit I, "Essentials for Good Nutrition," should have a very sound groundwork in nutrition; while the practical applications contained in the units on "Foods for Good Nutrition" and "Planning for Good Nutrition" should interest any high school girl as a prospective housekeeper. These two units cover, to list but a few subheads, construction of adequate diets, including family diet plans, adequate nutrition on racial diets, diets for overweight persons; good nutrition for children, including prenatal needs, characteristics of healthy children, psychology of feeding, the school lunch, nutrition and teeth; meal planning; buying and preparing food, including food budgets, legal protection of food buyer, food labeling, etc. Exhaustive treatment of any one of these topics is, of course, impracticable and undesirable in a book of this type, but it would seem that the table listing good points in racial dietaries and suggestions for improvement, for example, is so sketchy as to be of doubtful value. The treatment of most topics is sufficiently thorough and the text matter clearly worded.

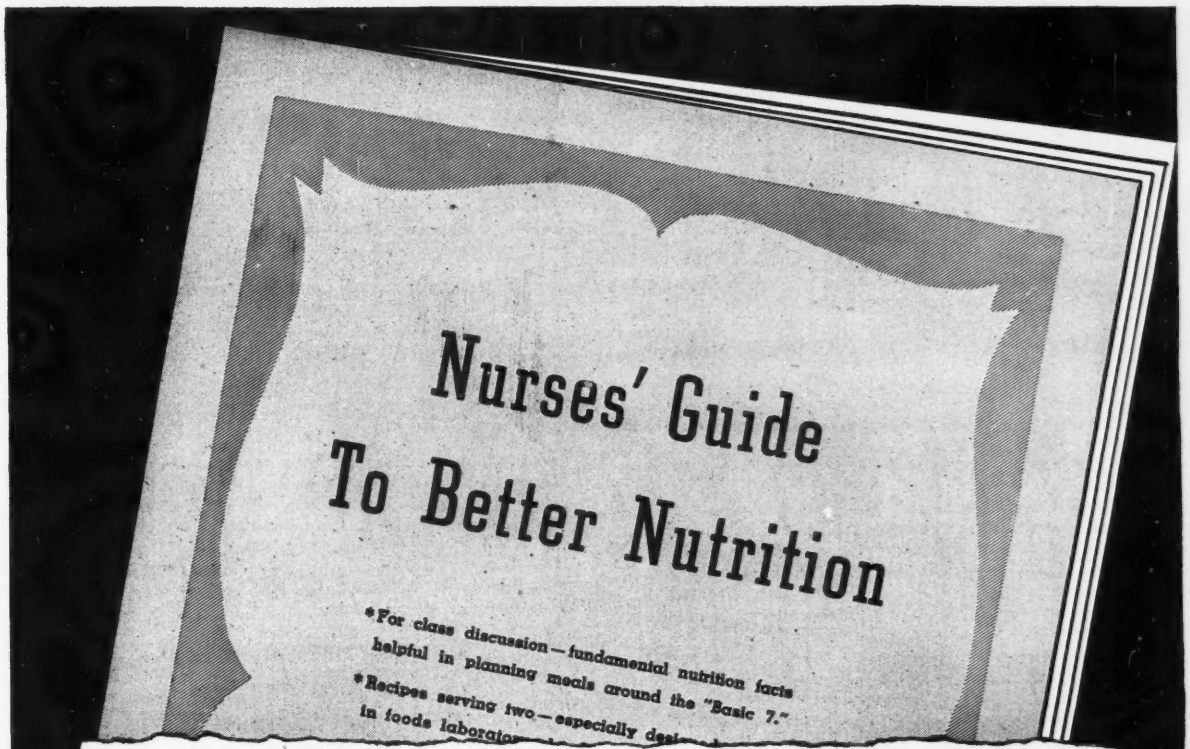
Health Service Areas. Compiled by U. S. Public Health Service, Federal Security Agency. Washington, D. C.: U. S. Government Printing Office, 1945. Paperboard. Pp. 68. For sale by the Superintendent of Documents, Washington, at 25 cents.

Listed as Public Health Bulletin No. 292, this compilation of data presenting requirements for general hospitals and health centers was prepared under the direction of the Surgeon General, for the Division of States Relations, Bureau of State Services.

The contents include: plan for coordination of hospitals and health centers; outlines for hospital districts; health centers; integration of general facilities with mental, tuberculosis, and federal hospitals; appendices containing maps showing counties, districts, and regional areas, and tables of selected statistics for counties, districts, and regional areas.

We read that: "Making the educational and consultant resources of large medical centers accessible to all physicians for their continued training after graduation not only would equip them to render service superior in character to that now possible but also would reduce the professional disadvantages of rural areas for physician location. . . . Consultant specialists and university professors attached to the staffs of the primary centers might serve the affiliated centers on a scheduled itinerant basis for demonstration of newly developed medical procedures and on an advisory basis in unusual cases of illness. By developing a group of traveling specialists who periodically would visit smaller cities and utilize local facilities as teaching units, the educational influence of large centers might be extended throughout the region. . . . What has been said about physicians applies to various categories of personnel—dentists, nurses, dietitians, sanitarians, administrators, and others in health departments and hospitals. Laboratory workers, for example, would benefit from authoritative explanations and demonstrations of new techniques and materials which have come into use since their basic training was completed."

"Although a native of Nebraska, Prof. Stone displays a fine command of the English language."—*Beloit College Round Table.*—Fearful odds often spur a man on. —*From the New Yorker, July, 21, 1945.*


Nurses' Guide
To Better Nutrition
*For class discussion—fundamental nutrition facts helpful in planning meals around the "Basic 7."
*Recipes serving two—especially desi
in foods laborator

A New Booklet

Especially for Student Nurses

You asked for it! From many dietitians have come requests for a booklet designed primarily for use by student nurses in foods and nutrition classes.

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Current Literature

Contributed by Bernardine B. Lewis and Janet Engebretsen, Dietary Department, Johns Hopkins Hospital, Baltimore; Mrs. Quindara Oliver Dodge, Simmons College; and the Journal Staff.

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 12, October 1945

* Peptic ulcer disappearance after feedings of normal human gastric juice. L. M. Morrison.—p. 323.
* An unusual clinical syndrome following ingestion of fish. H. Schneck.—p. 347.

Peptic Ulcer Treatment. This report demonstrates the presence of a "protective principle" within gastric mucosa. The Sippy diet is still widely used in the treatment of ulcers. The plan of this study was to remove the gastric juice from normal subjects and feed this, after suitable preparation, to patients with peptic ulcer. These ulcer patients were placed on a normal, well-balanced diet with no restrictions, other than the avoidance of alcoholic beverages. One half ounce of normal gastric juice diluted with 2 oz. tap water, was fed to each patient every hour during waking hours. Eight of the 10 patients responded in from 24 to 48 hr. to the feeding of normal gastric juice by becoming free of ulcer symptoms. No ulcer recurrences have appeared during a 3-year follow-up period.

Fish Poisoning. This unusual syndrome was caused from the following classifications of fish: *Carangidae* (jacks), *Scombridae* (mackerel), *Syhyraenidae*, and *Lutienidae*. Most of the cases have occurred in the late summer, usually about September, or during the fall or winter months. In this particular case the fish involved were improperly prepared prior to serving since they were kept exposed in a container of water at room temperature for almost 20 hr. Recovery from the symptoms in many cases was not complete for 3 weeks.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 144, September 1945

* Average food consumption in the training camps of the United States Army (1941–1943). P. E. Howe and G. H. Berryman.—p. 588.
* Response of the gastrointestinal tract to ingested glucose solutions. P. F. Fenton.—p. 609.

Food Consumption in the Army. In 455 nutritional surveys carried out in 50 military posts of the United States Army where Field Ration A was provided, the food consumption levels indicated the American soldier in these training camps received a nutritionally adequate diet. The Field Ration A is the rough equivalent of a liberal civilian diet. The average consumption of calories was 3700 plus 350 to 400 purchased from the canteen. Data showed an average of 0.39 lb. edible waste per man per day.

Glucose Solutions. When a 50% glucose solution was placed in the stomach of the rat no appreciable glucose absorption occurred. Absorption of the glucose and the *p*H of the gastric contents were increased as the concentration was increased. Females showed a lower absorption rate than males. Animals of about the same weight and age absorbed about the same amount.

AMERICAN JOURNAL OF SURGERY

Vol. 70, October 1945

* Chlorophyll and adrenal cortical extract in the local treatment of burns. G. H. Collings.—p. 58.

Treatment of Burns. Since the skin does not absorb appreciable quantities of either chlorophyll or adrenal cortical extract, no beneficial effects are secured from adding these agents to a simple vaseline ointment. Chlorophyll will maintain a surgically clean wound, so it usually accelerates wound healing. Some mixtures of chlorophyll and adrenal cortical extract with a greasy base have been beneficial in industrial use.

BRITISH MEDICAL JOURNAL

Vol. 4421, September 29, 1945

* Intestinal obstruction due to dried fruit. G. C. Darling.—p. 426.

Vol. 4423, October 13, 1945

* Nutritional macrocytic anæmia. Editorial.—p. 501.

Intestinal Obstruction. A case was reviewed in which an intestinal obstruction had been caused by a dried peach in the ileum. A list of cases was given including intestinal obstruction from mushrooms, cherry-stones, beans, figs, potatoes, apples, corn, popcorn, raisins, etc. These foods usually have no difficulty in passing through the digestive tract until they reach the narrowest part of the ileum. The risk is greatest, due to the water absorption, after the unprepared foods are swallowed whole. However, the food often passes through by means of peristalsis, and nothing more than a stomach-ache results.

Macrocytic Anemia. By means of the sternal puncture needle we are able to study the bone-marrow almost as easily as we can the blood. We know that the pathognomonic feature of this large group of deficiency diseases of the blood-forming organs is the proliferation of megaloblasts in the bone-marrow and the restoration of the normal type of erythropoiesis by liver. The megalocytic deficiency anemias may be further subdivided into those which are due to a defect in the diet, the nutritional macrocytic anemias, and those which are due to a disturbance in the digestion, of which Addisonian pernicious anemia and sprue are examples. In macrocytic anemia, hydrochloric acid is usually present in the gastric juice, the serum bilirubin is within normal limits, and the serum iron is usually not elevated. It is often complicated by multiple deficiencies. It has been shown by Moore that none of the B vitamins can act as the extrinsic factor but that the macrocytic anemia of pellagra depends on a prolonged deficiency of Castle's extrinsic factor in the diet.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 36, September 1945

* Sources of error in dietary surveys. E. W. McHenry, P. Ferguson and J. Gurland.—p. 355.

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Vol. 36, October 1945

* Salmonellosis—a public health problem. J. S. Kitching.—p. 396.

Error in Dietary Surveys. In a study of food intakes of a group of "normal" persons, it was found that the use of records for one week as an index of dietary adequacy gave results quite variable during 12 periods of observation. In dietary surveys, the representative sample of the population should be truly representative. Food consumption for one week, however, may not be representative of individual food habits. In computing the nutrients, the waste both in preparation and at the table, the actual composition of the foods eaten and not as determined from tables, and also the seasons, should be considered.

Salmonellosis. *Salmonella* are readily destroyed by heat but produce a heat-stable toxin, which may cause symptoms of poisoning when food vehicles have been contaminated. Animals, both domestic and wild, fowls and flies may suffer from infection and pass the infection to man through a variety of foods. Under ordinary household conditions organisms will multiply to a considerable extent in 24 to 72 hr., producing such slight changes in color and odor as to be readily overlooked. The disease in man may be indistinguishable from typhoid, although the symptoms are usually milder. The onset is usually sudden, with abdominal pain, fever, nausea, vomiting and diarrhea. Control measures for salmonellosis should be as stringent as for typhoid, and cases followed until proved negative.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 53, September 1945

* The treatment of essential hypertension with sodium thiocyanate. R. E. Beamish and J. D. Adamson.—p. 236.

Vol. 53, October 1945

* A study of ascorbic acid nutrition. H. J. Luson, J. F. Webb, H. P. Ferguson, E. M. Semmons and E. W. McHenry.—p. 341.

Hypertension. Hypertension causes one fourth of the deaths of all persons over the age of 50. Blood pressure over 140/90 is considered abnormal. At the present time the patient is advised to take adequate rest, avoid mental and physical strain, eat simple foods, keep the weight down, keep the bowels regular, and in general lead a well-modulated life. It has been said that administration of thiocyanates is the only effective treatment available. The drugs used are sodium and potassium salts of sulfocyanic acid and are accordingly known as sulfocyanates or thiocyanates. The dosages must be carefully controlled by blood cyanate estimation and patients should be under careful observation for appearance of toxic manifestations.

Ascorbic Acid. A study was made of subjects who had had a daily ascorbic acid intake of 25 mg. for some years. During a 3-month period, part of the group received about 25 mg.; another, 85 mg.; and still another, 125 mg. ascorbic acid daily. There was a significant rise in plasma ascorbic acid in the supplemented groups. Hemoglobin levels were significantly higher in men than in women. There was no rise in hemoglobin levels or any significant improvement in the supplemented groups.

HOSPITAL CORPS QUARTERLY

Vol. 18, October 1945

* Short discussion of DDT. Editorial.—p. 45.

DDT. The chemical manufacture and properties of dichlore-diphenyl-trichloroethane are discussed. It would be harmful to man if ingested in quantity and may cause dermatitis in sensitive persons. The crude material of DDT is not very stable especially toward heat, alkalies, and certain catalytic salts and minerals.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 129, October 13, 1945

* Inulin. Editorial.—p. 519.

Vol. 129, October 20, 1945

* Sodium restriction in the diet for hypertension. A. Grollman, T. R. Harrison, M. F. Mason, J. Baxter, J. Crampton and F. Reichsman.—p. 533.
The relationship of the adrenal cortex to hypertension. G. A. Perera.—p. 537.

Vol. 129, October 27, 1945

* Industrial medicine. L. G. Rowntree.—p. 595.
* The preventive and therapeutic use of vitamins. N. Jolliffe.—p. 613.
Nutrition in the Netherlands. Editorial.—p. 618.

Vol. 129, November 3, 1945

* Chronic hepatitis in the Mediterranean theater. M. H. Barker, R. B. Capps and F. W. Allen.—p. 653.

Vol. 129, November 10, 1945

* Maternal and child welfare: The Pepper bill. Editorial.—p. 741.
* Vitamin K and infant mortality. Current Comment.—p. 743.
* Italian medical nutrition mission. Medicine and the War.—p. 747.

Vol. 129, November 24, 1945

* Treatment of diabetic acidosis and diabetic coma. T. P. Almy, K. Swift and E. Tolstoi.—p. 863.
* The effect of cocoa on the utilization of dietary calcium. H. H. Mitchell and J. M. Smith.—p. 871.
* The pellagra problem. Editorial.—p. 874.
* Aptitude tests for vocational guidance. Current Comment.—p. 876.

Inulin. Inulin, a vegetable starch consisting of polymerized fructose molecules, has appeared in various roles in human biology. The American Indians used roots and tubers containing inulin as a foodstuff; after the discovery of America these were for some time competitors of the potato in Europe. With the final displacement of the Jerusalem artichoke by the potato in agriculture the interest in vegetables containing inulin vanished for many years. Toward the end of the last century they were recommended as substitutes for ordinary starch and sugar in the dietary control of diabetes mellitus. However, when it was shown that the human body does not possess any efficient mechanism for metabolization of this type of starch, the medicinal interest in inulin waned. It reappeared in 1935 on the discovery that inulin parenterally introduced is excreted exclusively through the glomeruli. Inulin clearance tests have been used since then in clinical and experimental work to ascertain the function of glomerular filtration of normal and diseased kidneys and to study the action of numerous endogenous and exogenous agents, particularly those with diuretic effects, on the renal function. Infants 4 to 9 days old have a glomerular filtration rate of inulin from 20 to 40% that of the adult, which is attributed to incomplete development of the glomeruli. Colorimetric methods for the quantitative determination of inulin in the blood and urine are now sufficiently simple, reliable, and accurate, requiring in part not more than 0.2 cc. blood for the single test, to make inulin clearance tests practicable in the average hospital laboratory. The preparation of a chemically pure solution of inulin, free from pyrogen, levulose, and the water-insoluble type of inulin, is at present the main difficulty in the way of the practical clinical use of this important renal function test.

Sodium Restriction in Hypertension. Diets rendered low in sodium content by dialysis were found to reduce decidedly the blood pressure of rats with experimental renal hypertension. That this effect was due to the low sodium content of such diets was demonstrated. It was also shown that prolonged administration of such "low sodium" diets

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1 *"Accepted Foods and their Nutritional Significance," Council on Foods of the A.M.A., 1939, p. 33.*
2 *Federal Register, June 7, 1941, p. 2762.*
3 *Release, July 2, 1945, Agricultural Research Administration, U. S. Department of Agriculture.*
4 *Note that the Vitamin A value of Nucoa is not an average, but the guaranteed minimum content of each pound, winter and summer.*

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not only was not deleterious but apparently actually prolonged the life of the experimental hypertensive animal. In 6 human hypertensive patients a drastic reduction in the sodium intake, made possible by dialysis of the milk included in the diet, resulted in no decline in blood pressure in 1 subject, a reduction of the pressure to essentially normal levels in 2 and a moderate reduction in the remaining 3, 1 of whom, however, displayed acute circulatory collapse which responded promptly to sodium chloride therapy. It is suggested that such diets be utilized for a brief trial period for patients with hypertension and employed for a longer period in subjects who display a favorable response.

Industrial Medicine. "As medical advisers of the greatest of industrial nations, American medicine will serve to keep American leadership and supremacy. It will be found cooperating with labor and with management and will be giving the individual workman and farmer a medical care better than elsewhere available in the whole world. It will, by its research, its ingenuity, its professional knowledge, help create the standards for employment conditions which, together with an individual care comparable to the care it gave the American soldier, will make American manpower, in quality and quantity of production, the greatest in the world."

Vitamins. Vitamin preparations may be divided into two large groups: the supplementary and the therapeutic. The supplementary preparations, in the recommended daily doses, provide amounts of specific nutrients below therapeutic levels but sufficient as dietary supplements to ensure an adequate intake of the specified nutrients; the therapeutic, those in which the daily doses are sufficiently large to be of value in the treatment of deficiency diseases—usually 3 to 5 but "maybe 10 or more times the minimum daily requirements." The supplementary levels of vitamins are of use in helping to prevent diseases due to deficiency of the nutrients contained in the supplement. Practicality dictates that the physician prescribe supplementary vitamins whenever a patient is not regularly consuming a satisfactory diet. Even though an unsatisfactory diet may be lacking in other essentials than vitamins alone, for those who do not or cannot regularly consume a satisfactory diet a proper vitamin supplement is indicated. "While this is not as good as a completely satisfactory diet, it is the next best thing."

Successful treatment of nutritional deficiencies involves many factors other than giving vitamins: It involves careful diagnosis, the treatment and whenever possible elimination of conditioning factors, symptomatic treatment, and finally the administration of nutritional therapy in sufficient amounts and over a sufficient period of time to evoke maximum reversal of the nutritional lesion. Adequate nutritive therapy does not consist in giving only the nutrients in which a deficiency is clinically manifest. It is now known that most deficiency states involve multiple factors, and deficiencies clinically evident are usually associated with additional tissue deficiencies of nutrients not yet clinically manifest. Adequate therapy of a deficiency disease, therefore, requires not only sufficient administration of the specific nutrient long enough to obtain maximum reversal of the manifest lesion but also, in addition, the restoration of tissue normal in all the essential nutrients. This can best be accomplished by a judicious combination of diet, a source of the whole vitamin B complex, the essential vitamins (vitamins A, D, B_1, B_2, C and niacinamide) and specific therapy. A good diet means a full, nutritious, protein-rich diet including natural unrefined foods administered within the tolerance of the patient." The good diet is essential, for it contains, along with known nutrients, unknown factors which cannot yet be encapsulated or dispensed in drops, ampules, or tablets."

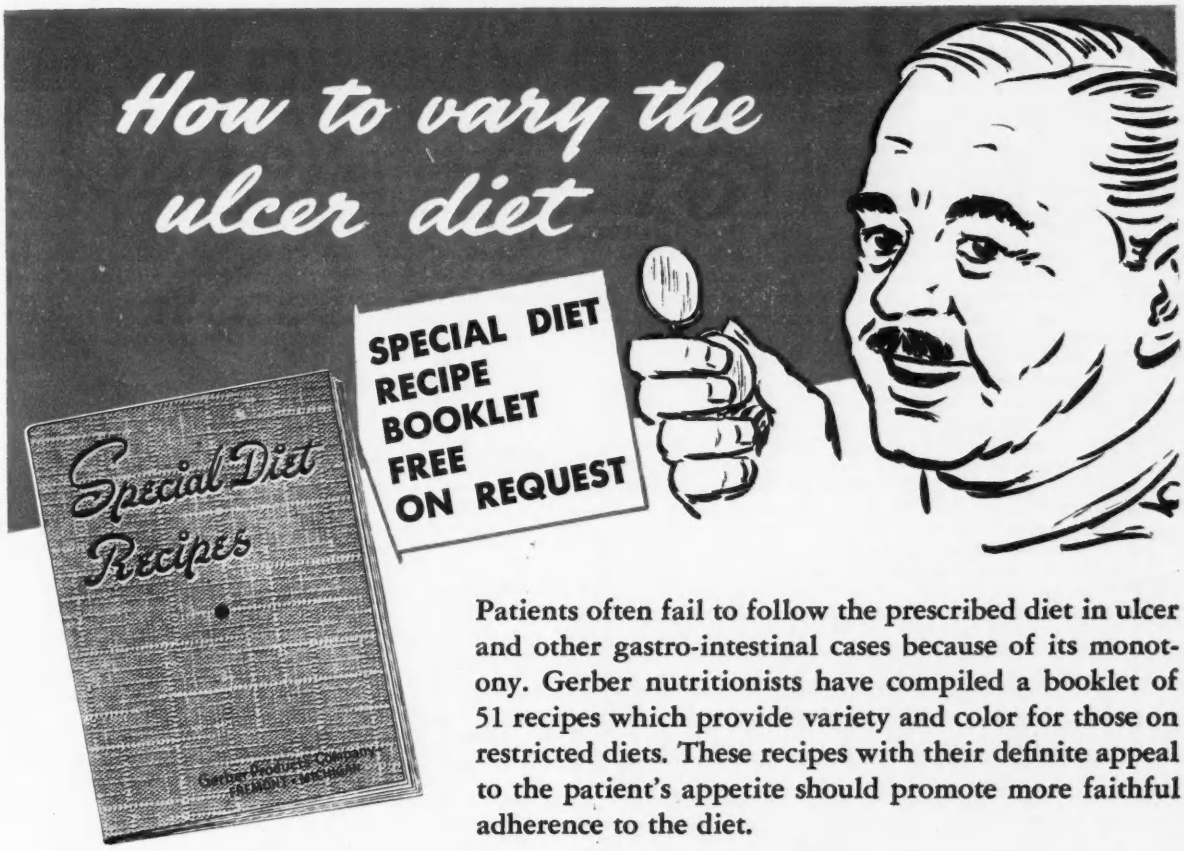
Chronic Hepatitis. It has already been shown that inadequate rest and a poor diet during the primary acute attack are important factors in the development of the persistent type of the disease. It is probable that a poor nutritional status at the time the disease is contracted is an additional factor. If active hepatitis has been established the patient should be put to bed, and placed on a well-balanced, high protein (250 gm.), high caloric diet as in the acute disease. The most desirable proteins are meat, milk, cheese, and eggs. The question of fats is still not settled, but meat fats are not well tolerated. Two ordinary polyvitamin capsules can be given daily. Treatment is otherwise symptomatic. One group, seen during the spring of 1944, received the generally accepted therapy of a high carbohydrate (350 gm.), low fat (40 gm.), and average protein (85 gm.) diet with only moderate bed rest, whereas another group, studied during the summer of 1944, received a high protein (250 gm.), high carbohydrate (350 gm.) and low fat (40 gm.) diet accompanied by strict and adequate bed rest. The better results in the latter group are apparent and significant, although the naturally variable course of this condition suggests caution in drawing final conclusions. It will be noted that fat was low in both diets, so that the effective nutritional factor must have been either the increased protein or the greater caloric intake which resulted from increased palatability. The more strictly enforced bed rest was also most effective. A direct nutritional effect on the liver is probably an etiologic factor in certain cases. Its importance is difficult to assess. The fact that chronic hepatitis can occur in apparently well-nourished persons and in patients on the recommended hepatitis diet indicates that this explanation of chronic hepatitis is not always valid. The possibility of a purely nutritional liver lesion must be considered and may well occur, but it is very unlikely that this is the cause of the cases described in this report.

Maternal and Child Welfare. "The Maternal and Child Care Act of 1945 appears . . . to be a hastily conceived, potentially dangerous, piece of legislation. The objectives it seeks to reach are desirable. The proposed measure would not obtain those objectives and would destroy much that has already been done toward their accomplishment."

Vitamin K. The value of vitamin K in preventing hemorrhage in the newborn depends on whether a prolongation of coagulation time is an essential feature of the hemorrhagic manifestations. Vitamin K has a definite effect in reducing the coagulation time when prolongation is due to prothrombin deficiency. The prothrombin time is usually prolonged in newborn infants for the greater part of the first week of life. This is the basis for the routine prophylactic use of vitamin K antepartum or neonatally. Confusion exists in the differentiation between true hemorrhagic disease and hemorrhagic manifestations in the newborn, with subsequent variations in the reported incidence and mortality of these conditions. Potter concludes that the routine administration of vitamin K does not reduce infant or fetal mortality and that hemorrhagic disease as an entity probably has some other inciting factor than a prolongation of the prothrombin time.

Italian Medical Nutrition Mission. The Italian Medical Nutrition Mission, sponsored jointly by the Unitarian Service Committee and the Congregational Christian Service Committee, is now set up and working in Italy under the United Nations Relief and Rehabilitation Administration. The purposes are "to find out the actual nutritional conditions and needs among the starving people of Italy, to help UNRRA evaluate and improve its feeding program in that country, to make a detailed scientific study of the results of a carefully supervised experimental feeding program for individuals who have suffered prolonged malnutrition, a study that may establish scientific procedures for all further feeding programs, and to help local medical groups in their rehabilitation programs and to encourage their continued scientific study." The American staff includes Ruth M. Flumerfelt, dietitian, Wisconsin General Hospital,

How to vary the ulcer diet



Patients often fail to follow the prescribed diet in ulcer and other gastro-intestinal cases because of its monotony. Gerber nutritionists have compiled a booklet of 51 recipes which provide variety and color for those on restricted diets. These recipes with their definite appeal to the patient's appetite should promote more faithful adherence to the diet.

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and Dr. Ancel Keys, biochemist and nutritionist, University of Minnesota. The report adds that "Miss Flumerfelt, the dietitian, produces an appetizing menu that demonstrates what can be done with UNRRA foods. Bread and macaroni are produced from the specially improved flour that was part of the design of the project."

Diabetes. "Experience indicates that patients with diabetic acidosis or diabetic coma can be successfully treated with small, standard and frequently repeated doses of insulin, that the administration of glucose in this disorder is beneficial and not harmful, that it is not necessary to follow the blood sugar and carbon dioxide combining power as guides to therapy, and that with such a simple method the constant attendance of specialists in diabetes mellitus is, in all but rare instances, unnecessary."

Cocoa. In the growing rat, two medium cost cocoas containing about 22% of fat depressed the utilization of calcium in proportion to their content of oxalic acid. A low cost cocoa containing about 11% fat and apparently appreciably more cacao shell depressed calcium retention about twice as much as can be accounted for by its content of oxalic acid. In adult human subjects, whether subsisting on a low calcium diet or on diets of borderline calcium adequacy, a medium cost cocoa in daily portions of 21 to 38 gm., approximating the tolerance limit, was not shown to affect the calcium balance adversely. However, if the effect of such cocoas on calcium utilization resides entirely in their content of oxalic acid, as the rat experiments indicate, it would not be expected to be appreciable in human metabolism, because the oxalic acid content of cocoa is only moderate, *i.e.*, 0.5 to 0.6%, and the calcium in the cocoa itself is sufficient to combine with about two thirds of the oxalic acid. Furthermore, the immobilization of milk calcium in the digestive tract by the remaining third of the oxalic acid of cocoa, equivalent to 22 mg. calcium for a 1-oz. portion of cocoa, would be expected to depress calcium retention by only one fifth of this amount (4 or 5 mg. calcium), because of the poor utilization of calcium (19% or so) by the adult human organism. Such a small depression in calcium retention is practically impossible to detect by the technique of the metabolism experiment with human subjects. The effect of low cost, low fat (dry) cocoas, rather commonly used in this country at times, should be tested on human subjects, with reference to tolerance and to calcium utilization, since with these cocoas constituents other than oxalic acid may depress the utilization of dietary calcium.

Pellagra. The discovery that a deficiency of niacin is directly related to the development of pellagra in man and blacktongue in dogs has not completely clarified the etiology of these conditions. For example, the relatively high incidence of pellagra in maize-eating populations is not entirely thus explained, since corn contains approximately the same amount of niacin as many other foods, such as eggs, milk, and oats. Also the early observations of Goldberger and his associates that various protein foods and, indeed, the amino acids tryptophane and cystine exert some beneficial effect in human pellagra indicate that factors in addition to niacin may be involved. The results of recent experimental studies on the pellagra problem appear to be valuable in elucidating these two puzzling questions. Blacktongue, the canine counterpart of pellagra in man, cannot be produced in dogs by a niacin low synthetic diet adequate in all other respects unless corn grits is added. The effect of corn grits is nullified by the addition of niacin, or by increasing the protein intake. The addition of corn grits may decrease the number of niacin synthesizing micro-organisms in the intestinal flora and thus lessen the amount of niacin available to supplement an inadequate niacin intake. The addition of trypotophane or protein, on the other hand, may favor an increase of the niacin synthesizing organisms and thus nullify the effect of corn. The fact that the proteins of corn are comparatively low in tryptophane may also be a related factor.

Vocational Guidance. Tests for the appraisal of aptitudes and interests of high school students, with special reference to education and choice of a vocation, have achieved wide recognition. Certainly much useful information can be derived from the competent use of psychologic tests and of interest schedules. Tests of this kind have been used extensively by the military forces. There is good scientific evidence favoring the use of tests, but they must be given by people who know their interpretation and limitations. The value of vocational guidance is unquestionable but is definitely limited by the training of those performing the tests. Furthermore, aptitude testing cannot be considered infallible and must be viewed as subject to modification as the result of continued experience.

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 160, September 1945

* The utilization of *d*-amino acids by man. A. A. Albanese, V. Irby and J. E. Frankston.—p. 25.
* The utilization of *d*-amino acids by man. A. A. Albanese, J. E. Frankston and V. Irby.—p. 31.
* Microbiological methods for the determination of amino acids. II. A uniform assay for the ten essential amino acids. J. L. Stokes, M. Gunness, I. M. Dwyer and M. C. Caswell.—p. 35.

Arginine. Equal quantities of *l*(+)- and *dl*-arginine were administered to humans. The results of the comparison of the output of nitrogen metabolites, urea, amino N, and arginine suggested that the *d* form was catabolized by man. The oral administration of 0.01 mole of *d*(−) arginine resulted in the excretion of 100 to 160 mg. more of arginine than when 0.01 mole of *l*(+)-arginine was fed.

Acetyltryptophane. With the exception of a 5% urinary loss, all of the acetyl-*dl*-tryptophane may be available to man; *dl*-tryptophane is only 50% utilized. This comparison was made from the actual growth of rats and from the measurement of urinary products in man.

Assay of Essential Amino Acids. A microbiological method is described for the determination of the 10 essential amino acids—histidine, arginine, lysine, leucine, isoleucine, valine, methionine, threonine, tryptophane, and phenylalanine—in foodstuffs and other natural products as well as in purified proteins and synthetic amino acid mixtures. Only 1.5-gm. sample is needed.

JOURNAL OF NUTRITION

Vol. 30, October 10, 1945

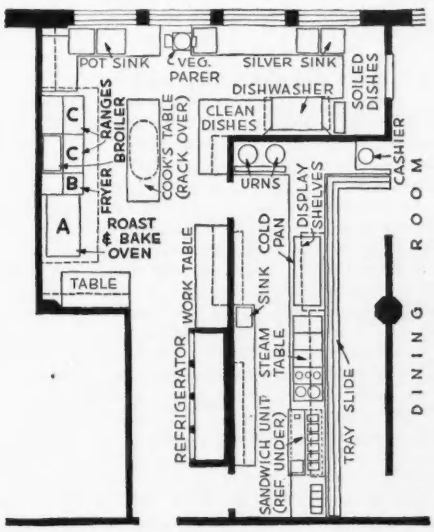
* Physiological availability of the vitamins. V. The effect of copper on extra dietary ascorbic acid. M. Hochberg, D. Melnick and B. L. Oser.—p. 225.
* Physiological availability of the vitamins. VI. The effect of absorbents on thiamine. D. Melnick, M. Hochberg and B. L. Oser.—p. 233.
* Calcium metabolism of preschool children. E. K. Watson, E. W. McGuire, F. L. Meyer and M. L. Hathaway.—p. 259.
* The protein requirements of adult human subjects in terms of the protein contained in individual foods and food combinations. M. Bricker, H. H. Mitchell and G. M. Kinsman.—p. 269.

Copper. Certain food products and pharmaceutical preparations contain quantities of both ascorbic acid and copper. In the presence of copper a small amount of ascorbic acid was destroyed when incubated but the destruction did not proceed when more ascorbic acid was added. The loss seemed to be caused by ascorbic acid oxidase. It was shown that ascorbic acid and copper are not incompatible when 200 mg. ascorbic acid and 7 mg. copper are ingested.

Absorbing Agents and Thiamin. Fuller's earth and kaolin absorb thiamin very readily from an aqueous solution. In the human, the fuller's earth reduces the availability of thiamin while the kaolin seems to protect the vitamin during its passage through the gastro-intestinal tract. However, it is not recommended that continuous large doses of absorbing agents be ingested unless precautions are taken to ensure sufficient vitamin intake.

"SPECIALIZED EQUIPMENT" FEEDS EIGHT TO TEN PERSONS PER MINUTE

From Very Limited Space



COOKING EQUIPMENT USED:

(a) 1 No. 959 BLODGETT GAS-FIRED ROASTING AND BAKING OVEN

(b) 1 gas-fired deep fat fryer

(c) 2 ranges with salamander broiler

Designed by: H. P. Rung, Kitchen Equipment Consultant, Nathan Straus-Duparquet, Inc., New York, N. Y.

Smoothly-functioning kitchen design is a "must" when a relatively large number of persons are to be fed from a kitchen where space is limited. The kitchen plan shown at the left provides food for a counter capacity of eight to ten persons per minute and its designer states: "This plan could be taken as it is and installed in almost any restaurant."

The Blodgett No. 959 Gas Fired Roasting and Baking Oven shown below and used in the plan at left, one of 24 models, is a "Specialized Cooking Tool" designed for mass production, regardless of space limitations.

Model No. 959

Write today for your copies of "Case Histories of Successful Mass Feeding Operations", "The Role of the Roasting Oven in Mass Feeding" and "A Baker's Bake Oven".

THE G. S. BLODGETT CO., INC.

50 LAKESIDE AVENUE, BURLINGTON, VERMONT

BLODGETT — Makers of Fine Ovens Since 1848

Calcium Metabolism. A study was made on 8 preschool children. Four were given an average intake of 1122 mg. and 4 others an intake of 775 mg. calcium. The addition of ascorbic acid in excess of that in the basal diet did not significantly increase the retention of calcium in these preschool children. Although the potassium citrate ingested significantly reduced the urinary excretion of calcium, the retention was little affected. The substitution of orange juice for crystalline ascorbic acid and potassium citrate did not alter the retention of calcium. It is believed that the major factor regulating urinary excretion is endogenous, and that it is probably related to endocrine balance.

Protein Requirements. Fifty nitrogen balance studies were carried out on 9 women to determine the requirements during adult life for different types of dietary protein. Foods used for the test were cooked. When allowance was made for probable dermal losses of nitrogen and for growth of tissues during adult life, the average daily requirements of conventional protein (N x 6.25) calculated to a weight of 70 kg., a surface area of 1.8 square meters, and a basal metabolism of 1650 calories daily, are: 43 gm. milk, 74 gm. white flour, 47 gm. soy flour, 54 gm. soy-white flour combination, and 50 gm. mixed foods.

MILBANK MEMORIAL FUND QUARTERLY

Vol. 23, October 1945

* Medical evaluation of nutritional status. XVI. Essential nutrients in diets of high school students according to sex and age for different cultural groups in New York City. D. G. Wiehl and K. Berry.—p. 353.

Nutritional Status of High School Students. Large differences in nutrient values for diets of 3 groups of high school students in New York City are reported in the latest of a series on the medical evaluation of nutritional status. Pupils from families of relatively high incomes attending a private school had diets which furnished, on the average, much greater amounts of protein, iron, calcium, vitamin A, and ascorbic acid than the diets of either Jewish or Italian pupils from low-income families. The Jewish diets gave higher values than the Italian diets for protein, iron, calcium, and ascorbic acid but lower values for vitamin A. The higher vitamin A values for Italian diets were due entirely to a relatively high consumption of fruits and vegetables rich in carotene or provitamin A.

MILITARY SURGEON

Vol. 97, October 1945

* Dairy products in the army ration. R. A. Isker.—p. 277.

Dairy Products. During the "War Between the States" sweetened condensed milk made its appearance in the Army ration for the first time. Today, 9 months often elapse between the manufacture and use of dairy products, so they must withstand storage under tropical or frigid temperature for that period. The aim of the Quartermaster General is to include in the ration of the soldier in the field the equivalent of 12 oz. fluid milk per man per day in one form or another. Refrigeration, processed products in tin, evaporated milk, dried products, frozen milk, add to the variety.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 233, October 4, 1945

* Medical progress: The parenteral use of vitamin preparations. J. F. Ingelfinger.—p. 409.

Vitamins. The National Research Council recommends 18 mg. niacin daily for a moderately active male of 70 kg., or 6 mg. niacin per 1000 calories. For the sick, 10 mg. per 1000 calories may be supplemented with 40 mg. nicotinamide. Patients with chronic ulcerative colitis or sprue may receive intramuscular ingestions of liver extract for vitamin B therapy; 75 mg. ascorbic acid a day is needed by the 70-kg. man and 150 mg. for the lactating woman. The plasma level of vitamin C is an index of the patient's ascorbic acid stores. Ascorbic acid is water-soluble and suitable for parenteral injection, preferably as sodium ascorbate. Vitamin A can be stored in large quantities. The daily requirement is 5000 units. Vitamin D may be injected intramuscularly. Vitamin K may be injected intramuscularly or intravenously in the water-soluble preparation. This is often used in the treatment of ulcerative colitis.

NEW ZEALAND MEDICAL JOURNAL

Vol. 44, August 1945

* Haemoglobin levels of a group of school children in Dunedin. L. Hayes.—p. 165.
* Survey of weight and height in New Zealand school children. T. C. Lonie.—p. 169.

Hemoglobin Levels of School Children. The hemoglobin levels of a group of children in the area supervised by the Health Clinic of the Department of Preventive Medicine, Otago Medical School, were estimated. In all, 520 children from 5 to 13 years of age were tested by the acid hematin method of Sahli. Hemoglobin levels ranged from 10.5 to 15.4 gm. per cent. The average was 12.5 gm. per cent and the range for the middle 50% was 11.9 to 13.3 gm. per cent; these figures are similar to those of other workers. There was no significant variation with age or sex. Of the children studied, 37.7% had a hemoglobin level lower than the normal, 12.0 gm. per cent, given by other workers for this age group. The homes of the children with low hemoglobin levels and an equal number of homes of the children with high hemoglobin levels were visited. Maternal inefficiency and poor diet were found to be factors significant in producing a low hemoglobin level. The children with low hemoglobin levels were treated with 10 grains of ferrous carbonate daily for 5 school weeks and all showed a considerable response at the end of this period.

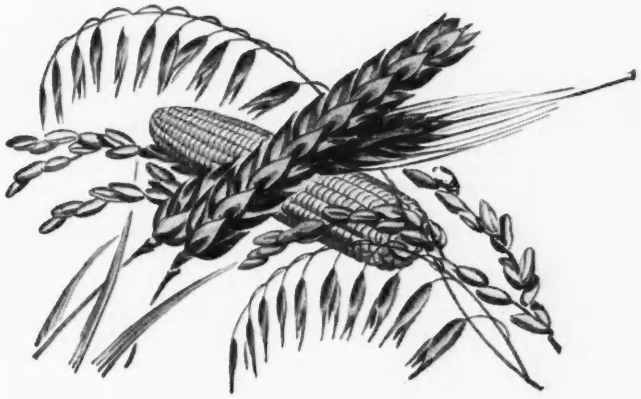
Height-Weight Study. "The subject of weight and height statistics, their collection and comparison, is a fascinating one. Given the time there would appear to be no end to the points one might elicit from them, and the deductions one might draw. It seems to the writer, however, that important as such periodic surveys as the present one may be, in that they enable a clear picture of the state of affairs at a particular time to be drawn, it would be much more valuable to collect individual records over a period of years. What is ultimately important is not the stage in weight or height reached by a particular child, but the fact that he is maintaining satisfactory growth. I have never been able to understand why this has not long ago been recognized as a matter of obvious importance in the school regime. The guidance given to doctor, parent, and teacher by these growth records would be of infinite value. Something of the sort is a fairly universal practice in the better type of school; there is no reason why it should not be a universal provision, as much part of the school curriculum as arithmetic of which it could easily be made a practical exercise."

SCIENCE

Vol. 102, October 19, 1945

* A method for measuring the effects of acid beverages on the teeth of small laboratory animals. J. S. Restarski, R. A. Gortner and C. M. McCay.—p. 404.

Tooth Decay. A method is suggested for evaluating the degree of destruction of the enamel on the molars of rats by various acid beverages (cola drinks, synthetic lemonade, etc.). A grading system is suggested.



Few Other Foods Can Better This Nutritional Composition

During the recent past much has been learned about nutritional needs. The importance of an adequate morning meal has gained wide recognition. That breakfast should be adequate not only calorically, but also in its content of essential nutrients, is advocated by medical as well as nutritional authorities.

In the breakfasts recommended, cereals, ready to eat or to be cooked, occupy an important place. For there are few foods that can better the nutritional composition of the dish composed of cereal, milk, and sugar.

Besides quickly available food energy, this dish provides notable amounts of biologically adequate protein, the essential B vitamins thiamine, riboflavin, and niacin, and important minerals.

The nutritional contribution made by 1 oz. of cereal (whole-grain, enriched, or restored to whole-grain values of thiamine, niacin, and iron), 4 oz. of milk, and 1 teaspoonful of sugar, is shown in this table of composite averages:

Calories	202
Protein	7.1 Gm.
Fat	5.0 Gm.
Carbohydrate	33 Gm.
Calcium	156 mg.
Phosphorus	206 mg.
Iron	1.6 mg.
Thiamine	0.17 mg.
Riboflavin	0.24 mg.
Niacin	1.4 mg.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.
135 SOUTH LA SALLE STREET • CHICAGO 3

FOOD INDUSTRIES

Vol. 17, November 1945

* Food chemists helped Britain to weather the war. D. W. Kent-Jones.—p. 101.
* Jobs for the wounded. J. A. J. Jones.—p. 106.
* Formulas.—p. 205.

Bread in Britain. If it had not been for the shipping-space problem, it is probable that the enrichment of bread policy would have been followed, rather than the 85% extraction flour. At first, the millers produced a meal of high fiber content rather than a flour. Later, by means of improved milling methods, they made a flour of only about 0.4% fiber at this extraction. This led to the research into the distribution of the various vitamins in the grain, which culminated in the discovery that 60% of the total vitamin B_1 resided in only 1.5% of the berry, the portion known as the scutellum. Today the extraction has been reduced to 80%, a flour that has only 0.2% fiber but still contains 2.4 mcg. per gram of vitamin B_1, 0.85 mcg. per gram of riboflavin, 16 mcg. per gram of nicotinic acid, and 1.65 mg. per 100 gm. of iron. The color is much better than would have been expected for a flour of this extraction in prewar days. Such flour is not of as good color as the enriched white flour in the United States, nor is it as rich in the principal B vitamins. At present, a government inquiry is determining the nature of the postwar loaf. Whether this will mean that flour will have to be milled to a set extraction so as to comply with certain vitamin standards or whether the principle of enrichment will be pursued as in the United States is as yet undecided.

Jobs for Wounded. A chart drawn up by Loose-Wiles Biscuit Company shows the jobs available and the injuries that may or may not incapacitate the veteran applying for employment. Full faculties required for each position, and partial or total disabilities permissible are indicated.

Cake Made With Soy Flour. A formula supplied by A. E. Staley Mfg. Co. for Colonial cake calls for 1 lb. full-fat soy flour to 5 lb. cake flour, and 2 lb. 8 oz. brown sugar to 1 lb. 8 oz. granulated sugar.

HOTEL MONTHLY

Vol. 53, September 1945

* A plan for installing a hotel safety program.—p. 32.
Safety organization in a hotel.—p. 34.

Vol. 53, October 1945

* How to get results from a hotel safety committee.—p. 27.
* Predicts that pre-cooked frozen foods will revolutionize food business.—p. 38.
* How to help use our bumper crop of potatoes.—p. 42.
* Chicago hotels to keep gains.—p. 79.

Safety Program in Hotel. The Hotel Sherman, Chicago, has devised a safety program which will protect the employees and guests. Its objectives are prevention of occupational accidents, fires, and diseases, as well as non-occupational accidents and illnesses. Frequent inspections are made and records kept of accidents, in order to eliminate hazards. Functions and responsibilities of participants of the safety committee of the Hotel Sherman are outlined. Responsibilities of workers are listed as follows: Workers should perform their work in accordance with directions of department head or supervisors; follow established rules for safety of the hotel; submit any ideas they might have which may assist in achieving the objectives of this program; attend monthly group meetings of their departments; serve on their departmental committee on a rotation basis; participate in various other safety and health activities; report all unsafe conditions; report all accidents resulting in injury or property damage, and all illnesses which they believe might be associated with their work; follow directions of the attending physician in the treatment of occupational injuries or diseases.

Precooked Frozen Foods. In the future there will be no reason why the food in the smallest roadside inn cannot be as good as that obtainable in the best New York café. The same type chefs will prepare it, from the same kind of ingredients, using the same recipes. The restaurateur will not try to be both a manufacturer and a retailer. He will buy his food largely prepared. He will tend to become more exclusively a retailer. The only additional equipment needed to serve these newer foods will be colder storage units and faster heaters. It will be much more profitable for him to serve this food which has been prepared by famous chefs; there will be no waste; what he does not sell today will not be on the menu tomorrow as a leftover disguised. He will heat his cooked, frozen food only as it is ordered. Each dish will be perfect. About half an hour's notice is all the hotel manager will require as to the number to be served at a banquet; he will heat only as many dishes as there are reservations. What he does not serve today he will keep until tomorrow, or next week, or next month.

Potatoes. This article contains many helpful suggestions, including a selection of recipes from Charles G. Moore's *Vest Pocket Vegetable Book*.

Hotel Business Practices. The Greater Chicago Hotel Association, at its meeting September 24, adopted a resolution calling on its members not to revert to prewar competitive practices of the depression years. Sound business practices adopted as of October 1 are: Eliminate complimentary guest rooms and suites to officials at conventions, banquets, luncheons, meetings and gatherings of all kinds; limit complimentary rooms to hotel executives or employees and relatives of the hotel personnel; meeting room facilities to be granted gratis only when sufficient guest room registrations will warrant same; all space to be used for commercial or other exhibits to be charged for at the hotel's established rates; no person or group of persons, except members of armed forces, to be given room rates lower than rates regularly offered to the hotel's general patronage.

ICE CREAM TRADE JOURNAL

Vol. 41, September 1945

* Three-year analysis of wartime sales.—p. 38.
* Egg solids improve ice cream quality. B. I. Masurovsky.—p. 56.

Wartime Sales. Ice cream sales for civilians and armed forces were 9.09% greater in 1944 than in 1943. In 1944, 81.06% of sales of frozen desserts manufactured were ice cream and 86.15% of all sales were to civilians.

Ice Cream Quality. It has been suggested that the ice cream industry could utilize the vast quantities of dried eggs. If egg solids represent .5% of the total mixture, the whipping property of the ice cream will be improved, since egg solids act as an emulsifying agent and also produce a creamier consistency. Once a container of whole egg powder or egg yolk is opened all should be used to prevent spoilage. The dry egg solids should be added to part of the granulated sugar and then to the ice cream mix when it reaches 100°F. French-style ice cream must have 1.5% by weight of egg solids; American-style, .5% egg solids. Dried egg yolks contain not less than 95% total egg solids. A case of 30 doz. eggs weighs 42 to 43 lb. net and yields approxi-

Dietary Protein after Surgery and Other Trauma

apparently must be maintained at a level above normal in order to assure proper wound healing* and at least average resistance against infection. The feeding of meat, therefore, in adequate amounts, as soon as it can be instituted, appears doubly advantageous: the protein content of meat is high and of highest biologic value; the human digestive tract appears well adapted for handling meat protein.****

*" . . . in a variety of medical and surgical conditions there may occur a considerable depletion of body protein owing to a combination of factors, of which the two most important are a generally diminished protein intake and an enhanced protein catabolism. This situation inhibits wound healing, renders the liver more liable to toxic damage, impedes the regeneration of hemoglobin, prevents the resumption of normal gastrointestinal activity and delays the full return of muscular strength. It is obvious that to meet the situation an adequate supply of proteins and calories must be made available to the body. . . . This implies at least 150 Gm. of protein and 3500 calories, with as much as 500 Gm. of protein daily when trauma has been severe, as in serious burns." (HOFF, H. E.: Physiology, New England J. of Med. 231:492 [Oct. 5] 1944.)

**"Cannon . . . cites the evidence which indicates that diminished protein intake lowers resistance to infectious disease, and corroborates it by his own experiments . . . it seems probable that the small intestine is better adapted for handling protein (especially meat protein) than for other types of food. . . . it is especially well supplied with enzymes which attack protein, and the digestion of meat has been shown to be more complete than that of foods of vegetable origins." (CRANDALL, L. A., Jr.: The Clinical Significance of the Plasma Proteins, Memphis M.J. XIX:147 [Oct.] 1944.)

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED AMERICAN MEDICAL ASSN Council on Foods and Nutrition

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO . . . MEMBERS THROUGHOUT THE UNITED STATES

mately 35 lb. liquid whole egg. One pound dried eggs can be made from 39 liquid eggs; 1 lb. dried yolk from 48 yolks; 1 lb. dried albumin from 70 whites.

JOURNAL OF HOME ECONOMICS

Vol. 39, November 1945

* Home economics: A liberal education. A. L. MacLeod.—p. 547.
* Apprenticeships in home economics. M. Mount and R. M. Lusby.—p. 573.
* Relation of posture to fatigue in ironing. E. E. Knowles.—p. 584.

Home Economics Education. The greatest definite progress in woman's education in the course of this century has been made in the colleges and departments of home economics. "Why is it that of 216,350 women students in 333 colleges and universities only 16.8 per cent are registered in home economics and this in spite of the fact that the demand for home economics graduates grows more insistent every day? Perhaps because of . . . academic snobbery, perhaps because of a general misconception about home economics or ignorance as to developments of the last quarter of a century in that field. . . . Thousands of homes in the country undoubtedly are better and thousands of families are happier because the mothers have had home economics training, but it is the professional women who have made home economics and the AHEA strong, and it is professional training on which the colleges and departments of home economics are based. On that basis, then, should we make a distinction between 'cultural' and home economics courses? . . . The problems of family life and of general welfare come under the head of sociology in many liberal arts colleges. Child development has long been a favorite subject of research by the psychologists. Consumer education is as legitimate an interest of the economist as of the home economist. Are these subjects to be included among the (by implication) less respectable subjects if they are taught in a home economics department or school but among the more respectable if the courses are given in liberal arts departments? . . . Before we can make applications we must have something to apply, hence the need for sound fundamental principles, whether taught in a college of liberal arts or in a college of home economics. The artificial distinction between 'cultural' and 'vocational' courses disappears, as it should."

Apprenticeships in Home Economics. Apprentice training in the professional fields of home economics has sprung from recognition that although college training may be thorough, it provides only limited opportunities for the student to put theory into practice and to adjust herself to the conditions and responsibilities of a job. Plans are being made to establish courses in industrial food service management (one already approved), business, extension service, public health and social welfare, and possibly undergraduate work experience either within the college year or during summer vacations. Qualifications for apprentices and training centers are listed, and the Pentagon Post Restaurants training course is described. "With this Pentagon Post training course, the American Home Economics Association is initiating a broad program of apprentice training in home economics which will eventually cover all professional fields."

Posture and Fatigue. Few systematic investigations have been made of the expenditure of energy and the physiological responses involved in the performance of any task. This study, made by the New York State College of Home Economics at Cornell, included study of working heights preferred by 600 women; motion picture analysis of ironing; measurement of metabolic, respiratory, and heart rates of each of 11 women, by standard physiological testing devices, and specially designed cardiotachometer and mechanical platforms. "The study shows clearly that a desirable height for the ironing board cannot be established by any known rule-of-thumb method and that body height cannot be the criterion for the selection of working height. Other factors seem to be more fundamental . . . length of the arm, height of the elbow, abdominal and bust extension, fullness of the upper arm, and vision. Efficient performance of any major household task makes necessary (1) equipment which is either adjustable or in a wide enough variety of measurements to fit the individual using it and (2) some understanding on the part of the homemaker of the importance of equipment suited to her body proportions. Without that understanding even the well-designed piece of equipment may do little to lighten the task."

NATION'S SCHOOLS

Vol. 36, September 1945

* Clean air a "must" in modern schools. W. R. Harris.—p. 20.
* Plan for job training. M. M. Griffin.—p. 56.
* Food for thought.—p. 57.

Clean Air. Electrostatic air cleaners remove fine dirt, dust, smoke, and soot which cause high maintenance costs and create annoyance. Mechanical filters will remove only large particles. These air cleaners have been used in schools to great advantage. Heating and air-conditioning costs are lowered because the air can be reused.

Job Training. Employees of the school cafeterias of New Jersey were taught quantity cookery methods and how to evaluate the products. At each meeting employees demonstrated dishes that were to be on the menu for the following week. Plate lunches were also displayed and analyzed. At each meeting some phase of the subject of sanitation of work habits was discussed fully. Visual education (do's and don'ts) was used. A follow-up of everything ensured success.

Cafeteria Motion Picture. The story of USDA's school lunch program is told in "Kids Must Eat," a motion picture distributed by state agricultural services, state university extension divisions, and Y.M.C.A. motion picture bureaus. Requests for all 35 mm. prints should be made directly to Motion Picture Service, Office of Information, USDA, Washington 25.

RESTAURANT MANAGEMENT

Vol. 57, September 1945

* Ten simple rules for training waitresses. A. K. Wilson.—p. 32.
* A three-day training school in food handling. J. H. Breland.—p. 36.

Rules for Waitresses. When a new waitress is hired, she is shown where to find supplies, how to approach a customer, and how to fill an order and make out a sales slip. She is taught what dishes are used with each order and how to arrange an attractive plate. Individual instruction and guidance are given to each newcomer until she becomes oriented. Girls reared on farms are physically better adapted to waitress work, and small girls are more expeditious than larger girls. When the waitress becomes better adjusted to routine jobs, she is given a set of rules to learn and practice. These are: treat each customer as an individual, supplying his wants as rapidly and quietly as possible; be sure that everything necessary to fill an order has been done before going on to your next customer; try to remember the likes and dislikes of your regular customers; if you make a mistake, apologize but do not brood over it; do not argue with customers, but keep silent if they are argumentative; replace everything you use in its accustomed place; do not carry towels over your shoulder or leave them on tables or counters; do not gossip or talk of personal affairs with cus-

"AW, MOM...THE KIDS WILL LAUGH!"

A need for new attitudes toward proper foods is revealed by recent school study.

One of the most powerful governing factors in child behavior—as every teacher knows—is the youngster's fear of being "different." That fear may today be a partial cause, at least, of some serious and widespread faults in the nutrition of school children.

In packing a lunch to be carried to school, the wise mother knows of many tasty and attractive foods that might be added to such standard favorites as sandwiches, milk, fruit and cookies. For example . . . crisp, fresh carrot sticks . . . a paper cup of coleslaw . . . a "rolled salad" made with whole lettuce leaves . . . celery stalks . . . or a whole tomato.

Why are vegetables so seldom seen in school lunches? A chief reason, probably, is that they are *unconventional*. Yet the great need for such foods in children's diets is shown very clearly by a recent survey.

In a combined tabulation covering rural, small town, suburban and city schools reached by this study, these surprising figures are revealed:

63.8% of all children had less than the recommended allowance of citrus fruits.

70% had less than the recommended allowance of green and yellow vegetables.

To help teachers overcome old prejudices and faulty habits in nutrition, General Mills is now preparing a variety of materials useful in the classrooms of all grades. These materials will be available in the near future.

General Mills, Inc.

Minneapolis, Minnesota

Enriched Flours • Restored Cereals • Vitamin Products

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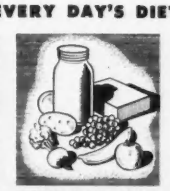
EVERY DAY'S DIET SHOULD INCLUDE THESE FOODS

GREEN AND YELLOW VEGETABLES . . . some raw, some cooked, frozen or canned. At least one serving a day.

ORANGES, TOMATOES, GRAPEFRUIT . . . or raw cabbage or salad greens. At least one serving a day.

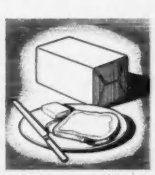


POTATOES AND OTHER VEGETABLE AND FRUITS . . . raw, dried, cooked, frozen or canned. Two or more servings a day.

MILK AND MILK PRODUCTS... fluid, evaporated or dried milk. One quart (or its equivalent) a day for children and expectant or nursing mothers; one pint a day for all others.

MEAT, POULTRY, FISH OR EGGS...or dried beans, peas, nuts or peanut butter. One serving of meat, poultry or fish a day, occasionally peas or beans instead. Three or four eggs each week.

BREAD, FLOUR, CEREALS . . . natural whole-grain or enriched or restored. Three or more servings a day.



BUTTER AND FORTIFIED MARGARINE . . . use for spreads and for seasoning as you like and as supplies permit.

In addition, all growing children and all expectant or nursing mothers should be provided with 400 units a day of Vitamin D in the form of Vitamin D milk (fresh or evaporated) fish liver oil or Vitamin D concentrate

tomers or the help; do not take the attitude that you are doing more than your share of the work; think of the people around you instead of yourself.

Training in Food Handling. A training program has been set up in New Orleans to instruct employees of more than 4000 restaurants and cafés in proper food handling. The project was planned and sponsored jointly by the city and state health departments and the Louisiana Restaurant Men's Association. The students are taught how to prepare, serve, and preserve food for the benefit of public health. Unsanitary personal habits and careless methods of handling food, china, silver, and glassware are stressed as detriments to public health as well as to employees. When 80% of the employees from a single restaurant have completed the course, a certificate which may be posted in view of its patrons is given to the restaurant manager. Restaurant workers completing the course are issued cards which validate their employment in any restaurant in the state. The training period (three 1½-hour sessions) is devoted to lessons, practical demonstration, and moving pictures. An outline of the training program is as follows: first day—introduction, why sanitary habits are necessary, how respiratory diseases are spread, how foreign elements can be kept out of food, demonstration of agar plates, quiz, and film "It's No Picnic." Second day—correct methods of table setting and clearing, how and when the floor should be swept, showing of agar plates from the previous day, personal cleanliness, film "'Twixt Cup and Lip," and quiz. Third day—why perishable foods should be kept in the ice box, prevention and elimination of insects and rodents, sanitary dishwashing methods, quiz, film "The House Fly," and presentation of certificates.

WHAT'S NEW IN HOME ECONOMICS

Vol. 10, November 1945

* Fresh fruits and vegetables.—M. Pentland.—p. 44.
* Selection—primary principle of meal planning.—p. 55.
* Modern ranges for modern methods.—p. 61.
* Cooking procedures and range performance.—p. 62.
* Parent Teachers Association lunchrooms. H. F. Roth.—p. 95.
* Plan your new lunchroom. W. S. Pendergast.—p. 96.
* Sauces.—p. 99.

Shipping Fresh Fruits and Vegetables. Citrus fruits, cherries, berries, and many similar foods which need moist refrigeration but which either bruise easily or quickly absorb water, are shipped in freight cars that are actually giant rolling refrigerators with ice storage space or "bunkers" extending at either end for the full width and height of the cars—20,000 to 30,000 lb. of ice being placed in the bunkers of each car. Melons, carrots, cabbages, lettuce, and other highly perishable fruits and produce are now shipped under a blanket of snow-ice, made by pulverizing 300-lb. cakes of ice in a crusher, then blowing the crushed ice through a giant hose so that it flows like a snowdrift over the fruit or vegetables in refrigerator car or truck. Last summer California growers and ice manufacturers made test shipments of melons picked fully ripe, packed in ice refrigerator cars and protected by a top covering of snow-ice. The ripe melons reached New York as edible as when they left California, disproving the, until then accepted belief that cantaloupes would spoil if kept in contact with ice long or that the moisture from the ice would seep through the rind, fill the seed cavity and result in mold.

Meal Planning. This is an extremely simple outline of the principles of meal planning, useful for teaching nonprofessional groups. Suggestions on "Ways to Dress Up the Potato," "Ways to Popularize Cooked Vegetables," in short articles in the same section also make excellent teaching material for similar groups.

Modern Ranges. Since cooking procedures and range performance are so closely related, home economists will find it advantageous to correlate the teaching of food preparation and the teaching of the mechanism of the range. Manufacturers have developed their ranges to a high point of efficiency, taking into consideration top-of-the-range arrangement of burners and units, including flexibility of heat, timing devices, oven and broiler arrangement, and other features. Article includes points on oven and broiler cooking, supplied by leading range manufacturers.

Cooking Procedures and Range Performance. More about top of range, oven and broiler cooking on both gas and electric ranges.

P.T.A. Lunchrooms. The Wauwatosa P.T.A. lunchrooms were organized in 1933. In the beginning, the P.T.A. furnished dishes, cooking utensils, and foodstuffs; the school board was responsible for stationary equipment, such as ranges, tables, chairs, and refrigerators. The P.T.A. raised money and was responsible for any deficits. Mothers took turns cooking and serving the lunch, the menus having been planned by a nutritionist. The menus and recipes for 5 grade school lunchrooms at present are prepared by a home economics instructor, and a reliable woman is employed to prepare and serve the lunch; the P.T.A. acts in an advisory capacity. During the canning season the home economics department of the senior high school canned tomatoes, tomato juice, and made apple jelly and butter for the lunchrooms. The P.T.A. furnished home canned foods.

Planning the School Lunchroom. This is the time to start planning the new lunchroom. There is no need to hold back because new and modern equipment will forthwith make your plans obsolete. The new kitchens will not be very different from the best of the old ones, except that they will be quieter, more convenient, and better adapted to the new lunch program. The cost will be cut if the original plan segregates the kitchen and service area from the dining room proper which may then be used as a study hall or band practice room much of the day. The type of program to be used will have considerable influence on the amount of space needed. Most architects plan 9 sq. ft. per seat for a school lunchroom. If the group is to be fed in two or three shifts, or if the staggered system is to be used, much less space for the lunchroom is required. The national trend is toward the whole meal program for all students and the lunchroom planned from this angle has the best chance of being functional 10 or 20 years hence. Location within the building is an important point to be decided. A very helpful outline of steps in planning a school lunchroom, together with a floor plan of one in Detroit, are included.

Sauces. Sauces add variety, eye appeal, and interest to the menu. Since they put a new front on the basic foods, they are especially important when the same group of people is being fed day after day. Recipes for 5 variations of sauces with brown gravy base, also cucumber sauce, mock hollandaise, and mustard sauce are given in quantity to yield 1½ gal.

NEW FINDINGS

Resulting from a project conducted by 5 great American universities reveal the value of canned foods as a low-cost source of*

ASCORBIC ACID

**Detailed report published in the August 10th, 1944, issue of THE JOURNAL OF NUTRITION*

For the first time, reliable evaluation tables are now available indicating the relative nutritive qualities of a wide variety of *canned* foods.

This advertisement presents specific data regarding ascorbic acid. Succeeding advertisements will deal with other vitamins.

Canned orange juice leads other canned foods in ascorbic acid values, as might have been expected. The research revealed an average of 39.4 mg. per 100 gm. In other words, a single 8-oz. glass of canned orange juice can be expected to supply more than the recommended daily allowance of 75 mg.

Among the foods studied, next best sources of ascorbic acid in cans were canned grapefruit juice, (33.8 mg. per 100 gm.) and canned grapefruit segments (24.6 mg. per 100 gm.)

Other good sources, in order of ascorbic acid content, were canned tomatoes—canned all-green asparagus—canned tomato juice—canned spinach—canned peas (sweet Alaska).

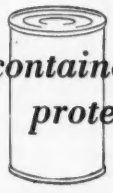
Thus the vitamin values of canned foods run generally parallel to so-called "fresh" foods, with relatively small average losses in the commercial canning process. This is especially significant for one important reason:

Because all canned foods are *processed*—ready to warm or chill and eat—the nutritive values for canned foods are *net* values. This contrasts with the *gross* values always quoted for raw foods, such as vegetables, which are subject to widely varying deductions for losses resulting both in transit from field to kitchen and in home preparation, which is too often destructive, especially of the water-soluble vitamins.

As a reader of this publication, you play an important part in helping to form public dietary habits. We urgently request your support in disseminating information regarding the good values of canned foods in supplying nutrition at low cost. As an aid, a leaflet has been prepared in lay language. Upon your request we shall be happy to send one or more copies for your use. Please address:

CAN MANUFACTURERS' INSTITUTE, INC., 60 EAST 42nd ST., NEW YORK 17, N. Y.

No other container protects like the can



News Notes

Food Service Directors' Conference. The Tenth Annual Conference of this group was held in Hartford, Conn., November 8–10, with the Hartford Home Economics Club as hostesses. Dorothea F. Behm, director of food service and nutrition, Board of Education, Hartford, was local chairman. Total registration for the two days was 164.

At the opening general session Alice Easton, food consultant, New York State Emergency food commission, spoke on postwar menu patterns, including in her talk many specific suggestions for writing menus for commercial restaurants and school lunchrooms.

At the business meeting, the following officers were elected for the coming year: general chairman, Mary Farnam, Board of Education, Cleveland; vice-chairman, Miss Behm; treasurer, Opal Bowers, General Electric Company, Schenectady, N. Y.; local chairman—1946, Evelyn Quigley, Board of Education, Pittsburgh; secretary, Frances Livingston Hoag, Department of Public Instruction, Harrisburg, Pa.; Executive Board—Grace M. Augustine, Iowa State College; Mary deGarmo Bryan, Teachers College, Columbia University; Mabelle S. Ehlers, Michigan State College; Thelma G. Flanagan, State Department of Education, Tallahassee, Fla.; and Rosa Spearman, Board of Education, Dallas, Texas.

Addresses at the annual banquet included: "Conditions in Britain and France With Special Emphasis on Food," by Annette Snapper, director of consumer service, Pabst Brewing Company, whose graphic description of the hardships undergone by people of France and Holland made a deep impression on those present. She stated that in the entire city of Paris that night there was undoubtedly less sirloin steak than was served at the banquet offered to the members of the Conference. "An Educational Program That Emphasizes the Importance of Alert Food Merchandising," was the subject of an address by Earl B. Webb, supervisor of distributive education, Massachusetts State Department of Education. The program at the luncheon on the following day included: "Good Food Can Help Extend Active Middle Life," Helen S. Mitchell, nutrition director, New Haven Chapter, American Red Cross; and "New Horizons for the Food Industry," W. L. Maxson, president, Maxson Food Systems, New York.

An extensive trip schedule had been arranged by the hostesses. Delegates were given a choice of the following: Yale University Residence Halls, New Haven, and Hamden High School; Connecticut College and U. S. Submarine Base, New London; Veteran's Home, Rocky Hill, Cedarcrest State Sanitarium, and Hartford High School; Ethel Walker School, Simsbury, and St. Joseph College, West Hartford; Aetna Life Insurance Company, National Fire Insurance Company, Hartford, and United Aircraft, East Hartford; two department stores in Hartford; and various high schools and junior high schools in the city. Lunch was served to the delegates during the course of the tours of inspection.

One of the interesting features of the conference was an address and demonstration by Jessie Alice Cline, director, Department of Home Economics, National Live Stock and Meat Board, Chicago. In describing some of the research now in progress concerning the effect of different cooking methods on nutritive value of meat, Miss Cline stated that, judged by preliminary results, there is no greater reduction in vitamin B content of meat cooked 15 min. at 20 lb. pressure than in meat simmered for 3 hr. Protein investigations have shown that there is no loss of any of the amino acids so far studied in meats cooked by the standard methods of cooking. Future investigations will include additional vitamin and amino acid studies, and effect of freezing and frozen storage on nutritive value. Results of investigations at Iowa State College, sponsored by the National Live Stock and Meat Board, will be published within the next 6 months, including different methods of cooking and defrosting frozen foods, experiments with frozen cooked meats, and other studies mentioned above.

Round table and panel discussions were conducted at group meetings and section meetings as follows: problems of school cafeteria directors and supervisors, led by Mrs. Katherine Bridges, supervisor of school lunches, Greenwich, Conn.; problems of school cafeteria managers, led by Florence Quast, professor of institution economics, Syracuse University; developing the educational opportunities of the school lunchroom, led by Dr. Mary deGarmo Bryan, professor of institution management, Teachers College, Columbia University; problems of hospital dietitians, private school and college residence hall managers, and commercial and industrial cafeteria managers, led by Martha Parsons, manager of Commissary Department, Massachusetts Mutual Life Insurance Company, Springfield, Mass. At one session for the latter group, at which Miss Quast presided, Mrs. Quindara Oliver Dodge, Simmons College, and Women's Educational and Industrial Union, Boston, read a paper on "The Administrative Dietitian in Industry," which appears elsewhere in this JOURNAL, and Alice Brown, head of Catering Department, David Hale Fanning Trade School for Girls, Worcester, Mass., discussed the training of new employees. Miss Brown has been interested for some time in work simplification studies and in the J. I. T. program for training new workers. Her directions for writing job analyses were of special interest to those present. Miss Brown mentioned that there is very little published material available on work simplification and job instruction training in food service departments. However, in the course of the discussion which followed her talk, it was pointed out that there are two publications available which might be of some assistance: a printed bulletin distributed by the National Coffee Foundation describing the coffee-making procedure developed by them for the Army; and *Hand Tools*, also prepared for Army use in training employees, distributed by the Educational Division, General Motors, Detroit. A bulletin on work simplification is available from the Syracuse University Bookstore, priced at about $1, according to Miss Brown.

Printed material presented to delegates at the conference included: *Sanitation Guide for School Lunchrooms*, Ohio Department of Health, Columbus; *Attention Food Managers*, and *Don't Be Your Age*, National Dairy Council, 111 N. Canal St., Chicago 6; and *Meat Manual: Identification, Buying, Cooking*, National Live Stock and Meat Board, 407 S. Dearborn St., Chicago 5. The latter company has two 35 mm. color, slide films available, also two movies, according to Miss Cline.

© Borden Co.

"Darling, that's not the way to get a star part in Borden productions!" laughed Elsie, the Borden Cow

"**The Borden inspectors** and veterinarians who help the farmers just don't go for fragile Mimis!

"A Borden cow must always be bounding with health, so that the milk which goes into Borden foods is pure and wholesome.

"And, dear, every *single step* in the preparation of foods made with this fine milk is watched with an eagle eye, too. Borden *controls quality* —and with scientific thoroughness!

"That's why doctors and nutritionists can wholeheartedly approve Borden's foods for little babies — foods like Dryco and Biolac and Borden's Evaporated Milk. And they can unhesitatingly say *OK* to the ice cream, the cheese— *any* food that bears Borden's label!"

—if it's Borden's, it's got to be good!

Medical Department Dietitians. According to word received from the office of Major Helen Burns, Director of Dietitians, Capt. Eleanor Mitchell is in charge of Army dietitians still on duty in the Pacific Theater; Capt. Myrtle Aldrich, in the ETO. Lt. Helena Quinn is on duty in Japan.

According to word received from the Office of the Surgeon General, December 5, the new criteria for the separation of Medical Department Dietitians is as follows: Age, 35; ASR, 30; in addition, LUS officers, married officers, and officers with dependents under 14 are eligible for separation. First Lt. Doris C. Klauman was erroneously included in the list of separations, December JOURNAL.

Major Burns announces that her office has been moved to Room 2C-526, the Pentagon Building, Washington.

Dietitians With the American Red Cross. Evelyn Anderson, who served with the Red Cross in Africa, Italy and France, has returned to her home in Des Moines. Miss Anderson received high commendation for her work from the Housing Manager of the Red Cross. The statement reads, in part, as follows: "At one meeting of the club directors from North Africa and Sicily, Miss Anderson presented her system of food handling and control. The outcome of this meeting was the formation of a new department in the American Red Cross, known as Food Service."

National Research Council Predoctoral Fellowships in the Natural Sciences. The Council announces that the closing date for applications for the predoctoral fellowships in the natural sciences, which it is administering under a grant from the Rockefeller Foundation, will be February 1, 1946. These fellowships are to assist young men and women, whose graduate training in the natural sciences was prevented or interrupted by their war activities, to complete their work for the doctorate. Candidates should send in their applications at once, and in any case—prior to February 1, 1946, even though they may be unable to begin their graduate work until a later date. Information concerning the fellowships and nomination-application blanks have been mailed out widely to graduate schools and wartime research laboratories. They may also be obtained by writing directly to the Secretary, Committee on Predoctoral Fellowships, National Research Council, 2101 Constitution Ave. N.W., Washington 25, D. C.

Standard Brands Fellowships. In an effort to help the food and nutrition industry overcome the war-enforced lag in research, Standard Brands, Inc., has announced the granting of fellowships in 10 universities, according to *Food Industries*, November. The fellowships are on a 5-year basis, and have been offered to the following universities: Cornell, Harvard, Indiana, Massachusetts Institute of Technology, Pittsburgh, Princeton, Rutgers, Stanford, Wisconsin, and Yale. Students for the fellowships will be chosen by the universities; fellowships include advance studies in bacteriology, organic chemistry, chemical engineering, biology, or food technology, biochemistry, and microbiology, and may be expanded to cover any other phase of the industry if the need arises.

Course on Economics of Food Production and Distribution at Cornell. A new course in the economic aspects of food production and distribution is being offered by the School of Nutrition at Cornell University this year, according to *Food Field Reporter*, November 12. Special attention is given to such topics as the history of the world's food problem, the factors which limit food production, and possibilities of expanding food production.

"Red Robin to Add Dietitian." Under the foregoing cheerful caption the *Food Field Reporter*, November 26, reports that a dietitian will be added to the staff of Red Robin Frozen Foods Co., Cleveland, to plan weekly menus for customers. The newly organized frozen food house-to-house delivery company will distribute frozen coffee, meats, fish, pastry dough, vegetables, fruits and juices. It plans to begin operations in March.

Products of Tomorrow Exposition. A preliminary announcement of this exposition, to be held for 22 days starting April 27, in the Chicago Coliseum, has been received. Products to be exhibited will include new developments in every type of industry in the country, including food service equipment manufacturers.

Eleventh Scientific Award of Grocery Manufacturers of America. Paul P. Dunbar, U. S. Commissioner of Foods and Drugs, was the recipient of this award, November 8, in New York. In accepting the award, Dr. Dunbar commented that "scientific research, which has for its objective the production of better foods, is in itself a powerful influence toward the displacement of debased products."

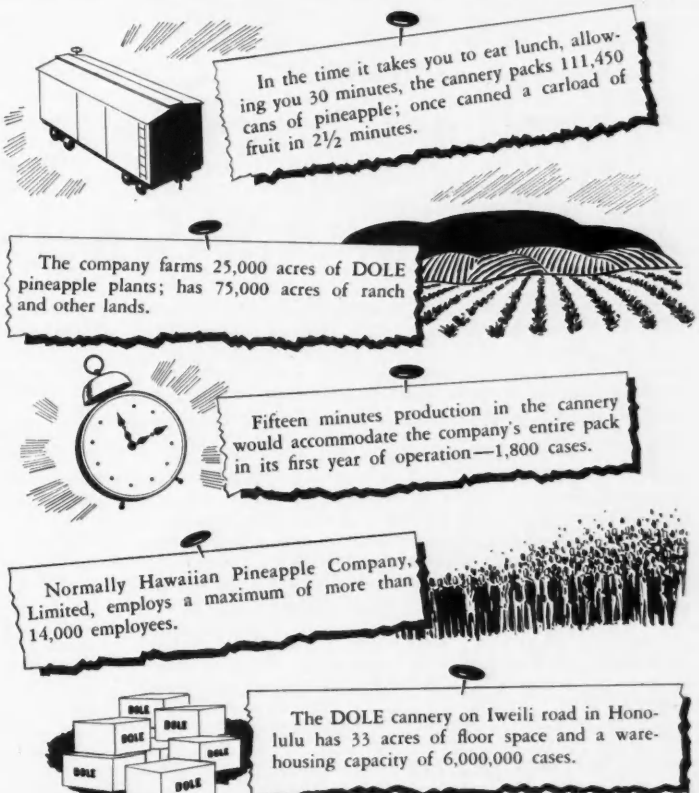
Wider Research on Foods Needed. Speaking before the annual meeting of the Grocery Manufacturers of America, Charles Wesley Dunn, general counsel, emphasized that, although the food industry is markedly increasing its expenditures for research, the future presents an opportunity for its infinite expansion. According to *Food Field Reporter*, he expressed concern over the sharp decline in the philanthropic support of universities which "have largely done the major basic research in the science of nutrition." He advocated that the government promote training of scientists by financial aid through scholarships and fellowships and that the food industry likewise aid the universities in developing expert food scientists. The Nutrition Foundation is said to have been established at Mr. Dunn's suggestion.

Women in the Grocery Manufacturing Business are acting as liaisons between the industrial operation on the one hand, and the woman consumer on the other, according to Esther N. Latzke, Armour & Co., whose talk before the Grocery Manufacturers of America is quoted in *Food Field Reporter*, November 12. Miss Latzke stated that women in the industry keep their fingers on the pulse of consumer reaction and interpret that reaction to their employers so that "many highly trained women have been admitted into the inner sanctum of the industry." She listed 6 major services provided by women executives: the development of new food products; as consultants on package designing and information to be placed on labels; as leaders in the industry campaign for good descriptive labels on all food products; as advisers in the advertising campaign which is directed to women; as advisers to the manufacturer on nutrition facts; and as interpreters of other women's thinking, for the grocery industry.

Comparison of War and Accident Casualties During World War II. A survey of the National Safety Council presents the following comparison of casualties between December 7, 1941, and V-J day, August 1945: War casualties (from the Army and Navy): killed, 261,608; wounded, 651,911; missing, 32,811; prisoners, 124,194; total, 1,070,524. Home front accident toll: killed, 355,000; injured, 36,000,000. Accident toll, workers alone: killed on the job, 66,000; killed off the job, 94,000; injured on and off the job, 15,000,000.

New Equipment and Methods for Meat Cookery. At the Food Service Directors' Conference, Hartford, November

Above is the masthead of the newspaper which is published by the Sales Division of the Hawaiian Pineapple Company, Ltd. In a recent issue of PINEWS there was some unusual information regarding the size and activities of the Dole operations in Hawaii and we thought it would interest you. So here it is as clipped from Pinews!


In the time it takes you to eat lunch, allowing you 30 minutes, the cannery packs 111,450 cans of pineapple; once canned a carload of fruit in 2½ minutes.
The company farms 25,000 acres of DOLE pineapple plants; has 75,000 acres of ranch and other lands.
Fifteen minutes production in the cannery would accommodate the company's entire pack in its first year of operation—1,800 cases.
Normally Hawaiian Pineapple Company, Limited, employs a maximum of more than 14,000 employees.
The DOLE cannery on Iweili road in Honolulu has 33 acres of floor space and a warehousing capacity of 6,000,000 cases.
DOLE
DOLE
DOLE
DOLE
DOLE
DOLE

FLASH! There'll be Dole Pineapple arriving at your grocer's in increasing quantities soon!

10, Jessie Alice Cline, National Live Stock and Meat Board, Chicago, described some of the future prospects for entirely new equipment and methods for cooking meat. Electronics, for instance, may have a part to play. Dielectric cooking, she stated, is not beyond the realms of possibility, and it would be in the restaurant and the school lunchroom that it could be used to best advantage. With this method, time for cooking roasts will be cut from hours to minutes. At present, dielectric cooking is in no way practical, because of the cost. Preliminary tests indicate that shrinkage would be diminished. The meat cooks from the inside out, so that it is not browned—at least in the present stage of experimentation.

Films on Nutrition. Adelia M. Beeuwkes, instructor in nutrition, University of Michigan School of Public Health, Ann Arbor, writes that a limited number of copies of the recently revised list of films available on nutrition may be obtained by writing to her. The list includes a brief description of each film, price, date, source, and other details, and should be of much value to those interested in this means of visual education.

Awarded Gorgas Medal. The Gorgas Medal, sponsored by Wyeth Incorporated, Philadelphia pharmaceutical house, and awarded annually since 1942 by the Association of Military Surgeons of the United States, was presented in Washington, October 29, to Capt. Lowell T. Coggeshall, M.C., USNR, expert on tropical diseases, "for distinguished service to our military forces in establishing new principles in the management of patients suffering from psychic disturbances as well as physical deterioration from the effects of malaria and filariasis."

The Road to Community Reorganization. Under this title the Women's Foundation, 10 E. 40th St., New York, presents the report of several groups of consultants appointed to make studies and draw up recommendations bearing on various aspects of the main purposes of the Foundation which are devoted to the development of the American home. Physical illness and mental breakdown due to family dislocation and disruption of the home, malnutrition, inadequate education, and poor housing, it is reported, have all taken their toll during the war. Racial tensions have been augmented by the strains of war and by a feeling of insecurity and uncertainty as to the future, and the possibility of unemployment still threatens the nation. All these problems, furthermore, will be reflected and in all probability increased in the reconversion period.

National Sanitation Foundation. This first annual meeting of the Foundation at the University of Michigan, October 17, was attended by 60 representatives of science and industry. Speakers included Brig. Gen. James S. Simmons, U.S.A.; Dr. Henry F. Vaughan, president, National Sanitation Foundation and dean, School of Public Health, University of Michigan; Dr. George B. Darling, secretary, American Academy of Science; Dr. W. L. Mallmann, professor of bacteriology, Michigan State College; Dr. Nathan Sinai, professor of public health, University of Michigan, and vice-president of the Foundation; and Major Lewis Dodson, U.S.A. The Foundation, incorporated in 1944, and financed by manufacturers of equipment and supplies used in the restaurant field and a number of operators of public eating places, has already launched five major research projects: a study on dishwashing at Michigan State College, a study on standard sanitary ordinances at the University of Michigan, research in the field of detergents, a study on methods of measuring utensil sanitation in Los Angeles, New York City, Baltimore, and Lansing, Mich., and a study on better presentation of education materials in the sanitation field.

Starvation Diet at Santo Tomas. In the war criminal trial of Gen. Tomoyuki Yamashita, commander of the Japanese forces in the Philippines when conditions at Santo Tomas were at their worst, as reported in the New York *Times*, November 8, Elvessa Stewart, home economist in the Philippine central school system who acted as dietitian while interned, revealed that she had kept a monthly record of food allotted internees by the Japanese starting in October 1944. By January the caloric count had dropped to 500 a day. The internees, however, were each able to obtain an additional 75 to 100 calories daily. Children over 10 were fed in the adult food line. Miss Stewart, whose normal weight is 144 lb., said she weighed only 82 lb. at the time of the liberation. At the trial it was also reported that Red Cross boxes were stolen and later stacked in Yamashita's headquarters.

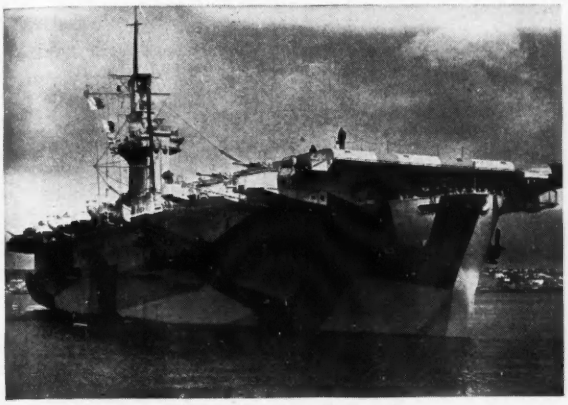
U. S. Food Allocations Announced. The United States made available to liberated European countries and French North Africa nearly 4,000,000 tons of food in the October-December quarter of 1945, Secretary of Agriculture Clinton P. Anderson has announced. Countries to which this food was made available include those served by UNRRA, also France, Belgium, the Netherlands, Norway, Italy, and French North Africa. In addition, about 740,000 tons are being exported to the United Kingdom and its services, and nearly 1,500,000 tons to other destinations, including U. S. territories. For the entire 1945 calendar year food exports and shipments to all destinations are estimated at 15,900,000 tons, of which Europe and French North Africa received just over 9,300,000 tons, the United Kingdom and its services 2,300,000 tons, and other areas including U. S. territories, 4,300,000 tons. "Takings" by U. S. military and war services are estimated at 12,800,000 tons and by U. S. civilians at 106,000,000 tons.

U. S. civilians in the third quarter of 1945 received more of most kinds of food than at almost any time during the war, and even more than in prewar years. There were, of course, certain important exceptions such as sugar, and fats and oils, of which world supplies are relatively short. The quantities of food made available to European countries substantially met stated requests, except for sugar, fats and oils, canned fish, and rice. Although the United States is the major source of food for these claimants, substantial amounts are being provided from other countries, notably Canada, South America, Australia, the Caribbean area, and New Zealand.

The principal factor currently limiting quantities of food going to the European area is financial, rather than one of supply, according to this release. Aside from civilian relief feeding by military agencies, dollar resources of certain European governments and the resources of UNRRA represent the two principal sources of payment for U. S. food. Both are relatively limited. The amount of dollar resources of the European governments depends in considerable part on the financial arrangements between these governments and the United States. A further limiting factor for paying governments is the necessity of weighing requirements for coal, machinery, transportation equipment and other essential items needed to rebuild their economies against the critical need for food.

Rationing and Price Control. Increases of 3 and 5% have been allowed in importers' and wholesalers' ceiling prices for English bone china and English earthenware, respectively, OPA announced October 31. The increases have been necessitated by a boost in prices by English exporters.

New Products. Among the canned meat items soon to be available to civilians, listed by the Can Manufacturers



Official U. S. Navy Photograph

THE UNITED STATES NAVY *selected* JOHN VAN RANGE KITCHEN EQUIPMENT

Food service in the Navy is 24-hour business every day. It calls for variety, from salads to desserts—for provisions of the highest quality, prepared, cooked and served with their flavors, juices, colors and nutrients preserved intact.

Cooks' galleys must be planned to utilize every foot of space; equipment must be designed and constructed to satisfy the most exacting requirements of dependability.

To meet these specifications the United States Navy selected John Van Range Kitchen Equipment for hundreds of vessels that contributed to victory in Europe and Japan and for naval bases and hospitals throughout the world.

Honored by the approval of the mightiest navy in history, we are now devoting our engineering and manufacturing know-how to civilian hospitals and institutions.

To secure preferred position on our production schedule please send us immediately your orders for complete new food service projects, for enlargement of your present facilities and for individual replacement units.

☆

The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

Branches in Principal Cities

341 EGGLESTON AVE. CINCINNATI, O.

Tray of the Day featuring MEAT BASE SOUP!

Now—even without soup bones—your staff can make soup full of the rich, delicious flavor of meat. It's B-V "meat magic" that makes the good meat base broth for soup.

Here's how! In making vegetable, noodle or any favorite soup, cook the soup ingredients in water and when tender add Wilson's B-V to suit the taste—about 3 tablespoons per gallon of soup. It's as easy as *that!*

NUTRITIOUS

Wilson's B-V is a delicious blend of concentrated meat extract and selected vegetable flavors. B-V adds valuable nutrients to the diet.

One teaspoon of B-V, the amount used to make a cup of broth, furnishes 36% of the day's requirements of iron, 66% of the riboflavin and 24% of the niacin, based on amounts recommended by the National Research Council for a sedentary man weighing 70 kg.

B-V "Big Boy"

Wilson's B-V is available in the large 20 oz. size for use by hospitals.

FREE!

Generous 2¼-oz. sample of B-V

and

set of delicious expertly prepared and tested B-V recipes for institutional use.

Write today!

Wilson & Co., 4100 So. Ashland Avenue, Chicago 9, Illinois.

Order from your Wilson salesman or jobber, or write

WILSON & CO. INC.

CHICAGO 9, ILLINOIS

Institute, Inc., in the *Food Field Reporter*, are: meat canned in large pieces instead of as hash, bacon, canned ham and candied sweet potato dinner, pork and apple sauce, and beef and gravy. Forty canned meat items, in contrast to the 12 available before the war, will soon be on sale.

According to USDA's *Food and Home Notes*, November 26, canned turkey is expected to appear in increasing volume in the future. In 1944, a total of 132,000,000 lb. of poultry was canned, a large share of which was turkey.

Brewers' Dried Yeast. The United States Brewers Foundation, Inc., 21 East Fortieth St., New York 16, has assembled a number of reprints covering the whole subject of brewers' dried yeast, all of which constitute a worthwhile addition to any technical library.

Anhydration, New Method of Food Processing. A new method of processing food, called anhydration, announced recently by Clarence Birdseye, will allow the housewife to store fruits and vegetables without refrigeration in a fraction of the space they now occupy, and to set them on the table, hot and appetizing, within 10 min. after they have been unpacked, according to Jane Nickerson, writing in the New York *Times*, November 14. Moisture is extracted from the products in a very short time, compared with the time required by the usual commercial methods, making the products more nearly like the fresh in flavor, color, and aroma. The foods are semi-precooked during manufacture, helping to speed up final preparation for the table. It is said that 80% less storage space is required to store the anhydrated products than would be required if the same foods were canned. The new foods were introduced at a luncheon sponsored by Home Foods, Inc., which will begin production next year. Among the foods successfully processed by the new method are mashed potatoes, which were described as white and "somewhat like rice" in appearance before cooking and which 4 min. later, after boiling water had been beaten with them, were fluffy and attractive; carrots, which appeared as orange-colored shreds and which cooked in 10 min.; and broccoli which "looked like a handful of dark green sea moss" and which also cooked in 10 min. A box of anhydrated vegetables about the size of a cigarette carton contains vegetables sufficient for several persons—the equivalent of 8 No. 2 cans. According to the reporter, judging from foods presented at the luncheon the new process has a "not too noticeable effect on texture and flavor."

Packaging. Extensive use of war-developed plastics in making new packaging materials is predicted in a report of an interview with Dr. R. P. Dinsmore, vice-president in charge of research and development of Goodyear Tire and Rubber Company, in *Food Field Reporter*, November 12. Dr. Dinsmore pointed out that some foods and food products require moistureproof packages, while others must be allowed to emit moisture through the package. Variables in oxygen and carbon dioxide retention and emission must also be considered. Many of the problems hard to solve with ordinary containers, he pointed out, do not even exist when plastics are used. Plastics can be made gas and vapor-resistant and can be heat-sealed. They can also be used as adhesives and cements.

A representative of the Birds Eye-Snider division of General Foods Corporation, quoted in the same issue, stated that frozen food packages need standardization of sizes similar to those used for tin cans. He recommended 5 or 6 varied sizes. Extensive experiments with both fiber and metal containers and the all-foil container are now being conducted by the company.

A self-service dispensing unit for frosted foods has been introduced by Frosted Food-O-Mat Co., Glenshaw, Pa. The new case, pictured in the *Food Field Reporter*, contains 20 staple food items any one of which is automatically delivered to the consumer at the touch of a button.

Monochloracetic Acid in Food. According to a release from the Food and Drug Administration, November 5, certain manufacturers of solutions of monochloracetic acid are marketing this substance under representations which may readily give the impression that monochloracetic acid may safely and legally be used as an ingredient in beverages and other foods. Monochloracetic acid is a poisonous and deleterious substance, the release states. This has been established by scientific investigation and has been confirmed in contested court cases. The Food, Drug, and Cosmetic Act prohibits addition of any poisonous or deleterious substance to a food "except where such substance is required in the production thereof or cannot be avoided by good manufacturing practice," in which event a tolerance may be fixed by regulation. No tolerance for monochloracetic acid in beverages and other foods has been established since it has not been shown that its use is necessary. Seizures have been directed also against preservative solutions containing monochloracetic acid offered to food manufacturers. The Food and Drug Administration has encountered no food which cannot be produced without the use of monochloracetic acid.

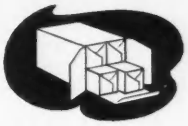
DDT as an Insecticide. Under the provisions of the Food, Drug, and Cosmetic Act which defines a food as adulterated if it contains any added poisonous or deleterious substance not required in the production of the food, DDT should not be employed on food crops or in the storage, handling, or manufacture of food unless it is required, according to a release from the Food and Drug Administration, November 5. It is stated that in determining whether or not DDT is required there should be taken into account the availability of insecticides that are less toxic than DDT. There is grave question concerning the propriety of the use of DDT on such crops as leafy vegetables, since safer insecticides such as the pyrethrins and rotenone are available. No question is raised concerning the use of DDT on such fruits as apples and pears since it is less toxic than the other commonly used insecticides for these crops, such as lead arsenate and cryolite. In any event, the quantity of DDT used should be held to the minimum reasonably necessary for protection. For the present the Food and Drug Administration will not take action against producers of apples and pears containing not more than 7 mg. DDT per kilogram of fruit.

A pamphlet on the use of DDT in mosquito control has been compiled by the U. S. Public Health Service. This booklet includes a summary of the investigations concerning this product at the Henry R. Carter Memorial Laboratory, illustrations and data on techniques and apparatus used in experimental studies, evaluation of residual sprays, and a chapter on the experimental use of DDT in the control of the yellow fever mosquito. For sale by the Superintendent of Documents, Washington, D. C., price 20 cents.

Labeling Quiz. As part of the descriptive labeling program of the Grocery Manufacturers of America, Inc., a "market basket quiz" is being sent out to homemakers and others asking for opinions on the value of the various elements such as grade, brand name, description, recipes, etc. Suggestions for improvement are also requested. The questionnaire was formulated by Flanley and Woodward, 551 Fifth Ave., New York 17. (The senior partner, Mabel Flanley, is a member of A. D. A.) Copies are available to those interested.

Keeping Quality of Milk. A milk company in Philadelphia recently conducted a 6-week experiment to obtain

Protecting Butter Purity



The commercial butter industry has devoted much time and scientific research to insure homemakers a product that meets the highest standards of purity as well as of flavor and quality. At the same time, the Federal Government, and the governments of most states, have adopted laws controlling the composition and cleanliness of butter so that it will be uniformly wholesome.

Today's modern creamery, through exacting sanitary controls, produces butter untouched by human hands. These controls begin with the dairy farmer's clean, inspected herd and dust-proof cans, and continue through the creamery's sterilized stainless steel equipment, glasslined tanks, filters and churns, and final bacteriological test.

All safeguards for butter purity end at the creamery, however, unless butter is properly packaged. From the creamery to the dinner table, butter is handled under varying conditions by many persons, in transit, at the store, and in delivery to the home.

It is to protect its purity as well as flavor and quality that most manufacturers package their best butter in paraffined cartons.

The paraffined carton is the identification of the manufacturer or distributor, by which the homemaker chooses the brand of butter she likes, with the assurance of guaranteed, uniform quality and purity.

Why the Best Butter is Packaged in Paraffined Cartons—

1. Preserves quality and flavor.
2. Keeps out undesirable odors.
3. Protects perishable body and texture.
4. Gives better sanitary protection and prevents crushing.
5. Reduces moisture loss.
6. Convenience in handling.
7. Guards against rancidity.
8. Provides brand identification and assurance of quality.

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an accurate standard of measuring the keeping qualities of processed milk in homes. Regular pasteurized and homogenized milks, delivered by routemen to homes, were stored in kitchen refrigerators under normal housekeeping conditions of average families in several neighborhoods. The Supplee-Sealtest Quality Control Laboratory made 1250 tests of samples, using the standard bacteria count method of the American Public Health Association with tryptone glucose milk agar and plating in triplicate. Bacteria per cubic centimeter averaged as follows in the tests: 1-day-old milk, pasteurized grade B, 17,100; pasteurized-homogenized irradiated grade B, 7900; 3-day-old milk, pasteurized grade B, 11,000; pasteurized-homogenized grade B, 9400; 4-day-old milk, pasteurized grade B, 13,200; pasteurized-homogenized grade B, 11,100. Copies of the full report may be obtained from Supplee-Wills-Jones, Philadelphia 21.

Bibliography of "Vitamin P." *Nutrition Resear h*, edited by Sunkist Research Staff, Los Angeles, presented the second and third parts of a bibliography of the scientific literature developed around the nutritional factor concerned with capillary permeability, in the October 1945 issue. Titles of additional papers from foreign publications which supplement the first part of the bibliography, are also listed. Part I covers medical and biological references; Parts II and III include chemical references and patents, and reviews and general references.

Vegetable Outlook, 1946. The "1946 Outlook Issue" of USDA's *Vegetable Situation*, contains a chart showing that about 66% of the truck crops commercially produced in 1945 were produced for processing as compared with about 54% for 1932–36. The release continues that commercial production of truck crops for processing is expected to continue to grow at a faster rate than commercial production for fresh market shipment, and that canning will continue to be the major form of processing of vegetables for a number of years. Commercial freezing of fresh vegetables, which at present provides an outlet for less than 2% of the total commercial production of vegetables, is expected to grow rapidly and, within the next 10 years, may reach sufficient volume to offer strong competition to fresh vegetables at retail. Probabilities for 1946 are that, with average weather and maintained acreages, commercial production of truck crops for fresh market may approximate the 1945 record-large production. Commercial production for processing in 1946 probably will drop below the high wartime levels in adjustment to the reduced needs of peacetime and the current ample canned vegetable supply, but over the years such production will remain above prewar levels and continue to expand.

Potatoes make up about one third of the tonnage of all vegetables produced in the United States and probably will continue to be the most popular vegetable for many years to come, though production has not quite kept pace with the growth in population. More than ample supplies seem certain for this winter and next spring. Wider distribution of sweet potatoes, seasonally and geographically, waits primarily on development of adequate, effective storage space in the South, improvement in quality, and further sales promotion in the North. A crop of about the same size as in 1945 is expected.

Dry edible beans will be in short supply for civilians through the 1945–46 crop year ending in August, because of the still considerable military and other noncivilian needs which must be met. Supplies of dry peas are expected to be ample.

Effect of Season on Vitamin Content of Vegetables. The season of growth is one of many factors which may affect the nutritional value of a vegetable, plant scientists of USDA reported in *Food and Home Notes*, October 29. For example, cabbage grown in the spring differs in vitamin content from that grown in the fall. Tests at the Southeastern Regional Vegetable Breeding Laboratory, Charleston, S. C., showed that the average yield of vitamin C, thiamin and riboflavin was greater in cabbage harvested in November than in that harvested in May, and the vitamins were more evenly distributed through the head in fall than in spring cabbage. As the weather becomes colder, more vitamins accumulate around the center of the cabbage, but in warmer weather, the vitamins are most abundant in the outer portions of the head. The outer leaves of May cabbage were much richer in vitamins than the inner leaves next to the core, but in November cabbage the reverse was true.

Influence of Salt on Judging of Cooked Vegetables. This was determined in two types of tests made at the Texas Agricultural Experiment Station, in both of which salt was the only variable. Three of the 5 experienced judges (2 horticulturists, 3 home economists) who participated in the study had no knowledge, at the time, that the tests concerning salt were being made. For 54 samples (27 with salt, 27 without) salt had no effect on the averaged values given for color, shape, and odor. But with flavor, texture, and acceptability there was a trend toward higher ratings for the salted samples. Apparently omission of salt militated against high rating on eating quality of both fresh and dehydrated vegetables as scored by this group of judges. There was no indication in the data that one judge more than any other was influenced by either the absence or presence of salt in the sample. Results of a "paired testing" of 8 dehydrated vegetable samples (4 of beets, 2 potatoes, 2 onions) bore no evidence that either addition or omission of salt in cooking the vegetables enabled the judges to detect small differences better in one case than in the other. Comments indicated preference for the flavor of salted samples. The findings are interpreted as support for the use of salt in cooking vegetables. Presumably, salt in proper proportions tends to enhance natural flavors. Laboratory results are then better suited for direct practical application.

Freezing Cooked Foods. In cooking vegetables for freezing a closed kettle should always be used to keep as much volatile flavor as possible from escaping, reports the Georgia Experiment Station, according to USDA's *Food and Home Notes*. Low-pressure cooking—below 10 lb.—proved better in the tests than ordinary steaming. Boiling in a tightly covered pan also saved more flavor than steaming, even though some flavor was lost in the cooking water. In packaging all cooked foods, a solid pack and a firm, rigid container are recommended. The loose pack used for raw vegetables and some other raw foods causes much loss of fresh quality, because it allows so much air to come in contact with the cooked food. In the tests, loose-packed cooked vegetables gradually lost their fresh flavor, turned brown, and took on an unpleasant warmed-over taste and color. But cooked vegetables packed solidly as a purée or covered with liquid kept in good condition because they were better protected from air. Tests of cooked meat showed that large cuts of boiled, baked and roasted meat—such as hams, shoulders, roasts and turkeys—froze successfully when wrapped to keep out as much air as possible. Cooked stew meat and trimmings also froze well if solidly packed and covered with broth or fat. Fried meats, however, lost their crispness and acquired a warmed-over taste, probably because of the difficulty of wrapping them closely enough.

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Among the combination dishes which proved satisfactory for freezing, when properly prepared and solidly packed, were: Brunswick stew, chicken à la king, shrimp creole, lobster Newburg, and vegetable beef soup. The fat in some of these products separated during freezing but combined again with the mixture during the reheating after thawing.

Finding Frozen Foods. Suggestions for keeping the contents of the freezer more readily available include: use of durable labels indicating name of product, date packed, number of servings, amount and kind of sweetening, variety of fruit or vegetable, etc.; use of different colored string, paper, or labels; mesh bags to hold all the boxes of one product; plywood or pasteboard partitions arranged to section off different kinds of foods; or a map or inventory list placed on the wall near the freezer.

Nut Yields. When buying nuts in their shells, one is sometimes uncertain as to how much "meat" they will yield. This yardstick suggested by home economists of USDA will help eliminate guesswork: 1 lb. unshelled almonds yields about 1 cup shelled kernels; 1 lb. filberts, about 1⅓ cups; 1 lb. peanuts, about 2 cups; 1 lb. pecans, almost 1½ cups; 1 lb. English walnuts, a little more than 1½ cups halved kernels; and 1 lb. black walnuts, about ½ cup broken kernels.

Aging Time of Meat Reduced. The *Food Field Reporter*, October 29, quotes an article in the new magazine, *Food Freezing*, in which Dr. Hugh H. Darby, vice-president and director of research for Freezer Foods, Inc., states that the aging of meat may be revolutionized by special racks, which tenderize the meat in only 7 days as compared with the 21 to 28 days usually required, and cut shrinking and trimming loss, usually totaling 12 to 17%, to approximately 2%. The aging racks consist of insulated cabinets with refrigeration and humidification units which keep the temperature between 37 and 39.5°F. and the humidity ratio, between 92 and 96%.

Turkey Roasting. The following suggestions, offered by home economists of USDA in *Food and Home Notes*, are presented here in full for the benefit of those who may wish to brush up on their turkey roasting techniques after all these years: For roast turkey, choose a young, tender bird, with a generous coating of fat under the skin. Other clues to roasting quality are a well-rounded body, a well-fleshed breast, few blemishes, and few pinfeathers.

Draw the turkey, and sprinkle the inside of the body cavity with salt. Then put in the stuffing, being careful not to pack it too tightly—it will need room to expand as it absorbs juices that cook out of the bird. Finish off by slipping the heel of a loaf of bread, or some other large crust, into the opening to hold stuffing in place. Tuck the legs under the band of skin at the tail, and secure them in place by taking a stitch at the end of the breastbone and wrapping the cord around the legs and under the tail. Stuff the loose skin at the base of the neck, fold it toward the back of the bird, and fasten with a skewer, poultry pins, or a few stitches. Rub the bird all over with fat and a little salt and pepper.

A shallow, uncovered pan is best for cooking a young turkey. Place a rack under the bird to keep it from sticking and to allow hot air to circulate. The broiling tray and rack of some ranges can be used, though the size of the tray interferes with the circulation of air and is likely to slow down cooking time. When using a very shallow broiler tray, pan drippings must be poured off from time to time as they cook out of the bird. Start the turkey cooking breast down.

Don't put water in the bottom of the pan when cooking a young bird. Steaming breaks the skin and forces juice out of the meat, and is not necessary when the bird is young and tender.

Cook at a moderate temperature. The larger the turkey the lower the temperature, is a good rule of thumb. A 10 to 13-lb. bird will take about 3½ to 4½ hr. at 300°F. A larger bird, 14 to 17 lb., requires about 5 to 6 hr. at 275°F. However, no hard and fast rules about cooking time can be given—some birds cook faster than others. Baste frequently with pan drippings or some other well-flavored fat. Baste a small or medium-sized bird every 30 to 45 min., a larger bird every hour. Turn the bird every time it is basted, lifting it at head and foot, to keep parts standing high in the oven from cooking faster than the rest.

A copy of *Poultry Cooking* (Farmer's Bull. No. 1888), which tells how to cook turkey and other fowl in various ways, may be had free by sending a postcard to the Office of Information, USDA, Washington 25.

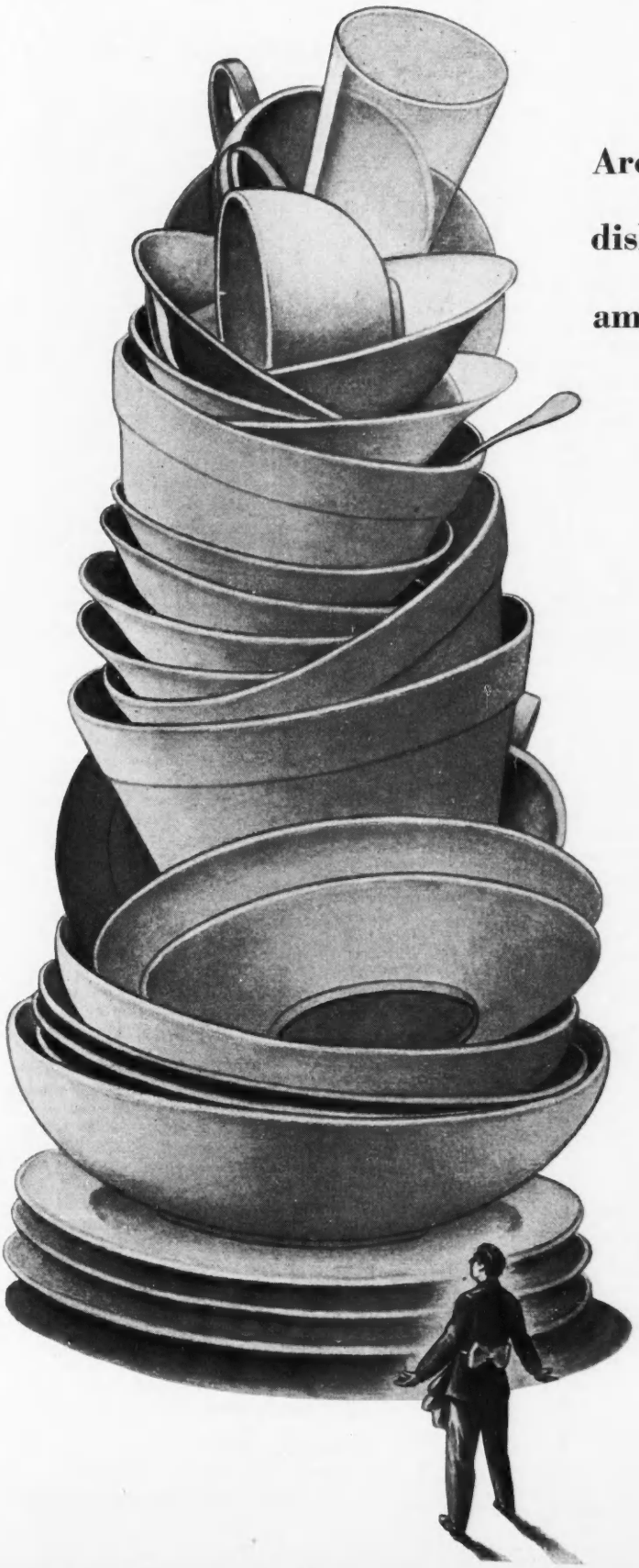
Cooking Frozen Chicken. Home economists of USDA offer these general suggestions concerning the cooking of frozen chicken: When thawed before cooking, poultry cooks more evenly and with greater economy of fuel. It may be thawed slowly in a refrigerator, or at room temperature. Once thawed, cook poultry without delay. Do not try to hurry thawing by soaking the meat in water, hot or cold. Cook like any other meat, at no higher than moderate temperature. For example, keep oven temperature down to 350°F. for roasting chicken, or at 275°F. when braising a fowl in a casserole dish. If a young bird is to be fried in shallow fat, keep the heat moderate throughout cooking. If poultry must be thawed, or partly thawed during cooking, don't try to speed the cooking by using high temperatures, just allow extra time.

Food Packaging. Prepackaging plus scientific refrigeration results in substantially prolonged freshness of fruits and vegetables, as shown by tests conducted at Ohio State University, and sponsored by the Great Atlantic and Pacific Tea Co., reports the *Food Field Reporter*, October 29. Packed produce retains its freshness from 1 to 5 days longer than when unpacked. Green beans and parsley were both 100% salable after 5 days, compared to the unpackaged, unrefrigerated goods which were a complete loss. Spinach was 90% salable after the same period, but the unpackaged food was a complete loss after 24 hr. Peas and carrots, still fresh under the new method, lost 75% when unpackaged. Tomatoes and head lettuce retained 100% freshness, but lost 50% unpackaged. Celery, 100% salable, lost 65% when sold in bulk.

All produce except potatoes and a few staples were wrapped in cellophane in consumer size packages and sold from open-type, self-service refrigerator cases. Dr. Charles W. Hauck, of the Ohio State University's Rural Economics Department, stated that he hoped that packaging would eventually be done at the farms, thereby cutting out the waste and spoilage incurred in transportation.

Grapefruit. Home economists of USDA remind us that grapefruit may be sweetened by filling the hole left by cutting out the white center, with strained honey. Then set the fruit in the refrigerator overnight. By breakfast time the honey will have penetrated all sections of the fruit, giving it even sweetening and a delicate honey flavor.

Cinnamon. The bulk of the cinnamon flavoring on the market in normal times is cassia imported from China, the Netherlands Indies and Indo-China, according to the Office of Foreign Agricultural Relations of USDA, as reported in *Food and Home Notes*, November 19. True



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cinnamon has a much milder "cinnamon" flavor than cassia and a paler color. During the war practically no cassia was imported but imports of Ceylon cinnamon were somewhat larger than normal. Supplies to date, however, have been far short of demand. Marketing specialists report that exporters in China recently have been offering cassia to importers in this country and some shipments are expected early in 1946. On the other hand, shipments of cinnamon are likely to be smaller than in the past year because the crop will be distributed to recently liberated countries as well as to the United States.

Nut shells, usually a waste product, have been put to an unusual use in recent years when the war caused a cinnamon shortage. The ground shells of a number of different nuts have much the same color and texture as powdered cinnamon, which is the ground inner bark of either the cassia or the cinnamon tree. To meet the demand for cinnamon during the war, some manufacturers prepared an imitation product by using ground nut shells as carriers for cinnamon oil or cinnamic aldehyde, a synthetic cinnamon flavor.

Melva Bakkie Addresses Business and Professional Women. Miss Bakkie, director, Nutrition Service, American Red Cross, addressed the recent meeting of the National Health Advisory Committee, National Federation of Business and Professional Women's Clubs, which was devoted to a discussion of the high incidence of mental disease among women, and the need for more psychiatrists. Other speakers were Dr. Thomas Parran, Surgeon General, U. S. Public Health Service; Norman Damon, Automotive Safety Foundation; and Dr. Dorothy Nyswander, consultant in health education, Inter-American Educational Foundation.

Lillian Storms Married. An announcement has been received of the marriage of Dr. Lillian B. Storms to Mr. Winfred Forrest Coover, November 16, at Ames, Iowa.

Correction. Biruta P. Welaish writes that she has received her "commission as Junior Assistant Dietitian (R) in the U. S. Public Health Service. My present station is the U. S. Marine Hospital in Brighton, Mass." Earlier she was erroneously reported in a news item submitted for publication as having accepted a position as administrative dietitian at the Beth Israel Hospital, Boston.

Edith M. Pierson, dean of Division of Home Economics, South Dakota State College, died suddenly of a heart attack on October 10, while addressing a meeting of the Sorosis Club. Dean Pierson went to South Dakota State College in 1919 as associate professor of home economics, and was made head of the department within a short time. She became dean of the division when home economics work was expanded in 1925.

Canadian News. According to the report of the president, appearing in the *Newsletter*, September, the Canadian Home Economics Association was invited to attend a meeting of national women's organizations to establish a program dealing with "Women in the Post-War." Two conferences were held in 1945 and the C. H. E. A. was represented by two of its members. Some 30 recommendations were made by the conference, and it was announced that the Liaison Committee on Women's World Organizations had been invited to hold a world conference on this continent in May 1946, and that all women's organizations would be invited to attend. Elsewhere in the *Newsletter* minimum undergraduate requirements for a household science teaching major are listed. Under the heading, "Home Economics Women in Business," the number of Hewibs by provinces and by occupation is listed. "Commercial dietitians" head the list at 123, journalists 20, nutritionists 4, home service directors 11, commercial demonstrators 3, research workers or laboratory technicians 16, free-lance consultants 2, manager of own business 1, others 1. About 50% of those listed as "commercial dietitians" have university degree standing. Experience in the majority of cases is based on hospital work. It is stated that changing the term "Home Economics Women in Business" to "Home Economists in Business" to conform with that used by A. H. E. A. would necessitate a change in the constitution of the C. H. E. A., hence the matter had been dropped.

Alabama Dietetic Association held its fall meeting in the auditorium of Jefferson Hillman Hospitals, November 3, with Anne Gretschmann presiding. The following papers were presented: "Nutrition in Industrial Feeding," Dr. I. R. Fabershaw, director, Division of Industrial Hygiene, Alabama State Board of Health; "Food Handling, Packaging and Delivery," Dr. Joseph F. Vincent, biochemist, Southern Research Institute, Birmingham; "The Importance of Protein in Human Nutrition," Dr. James S. McLester, professor of medicine, University of Alabama. A business meeting followed at which Miss Gretschmann reported on the meeting of the House of Delegates in Chicago.

Georgia Dietetic Association. Officers for 1945–46 are: president, Susan Mathews, nutritionist, Georgia Agricultural Extension Service; president-elect, Mrs. Gussie T. King, Milledgeville; vice-president, Mrs. Frances Koeth, Atlanta; secretary, Josephine Spence, Athens; treasurer, Mrs. Martha Clark, Atlanta. Members of the nominating committee include: Viola Foy, Atlanta, chairman; Jessie Harris, Atlanta; Lt. Helen Marston, Fort Benning; Marguerite Meyers, Columbus; and Mrs. Mattie Ridgeway Calloway, Atlanta. Section and committee chairmen are: Administration, Florence Kitchens; Community Nutrition, G. May Halfacre; Diet Therapy, Frances Compton; Professional Education, Ethel Johnson; Program, Catherine Newton; Membership, Mrs. Bromley Clark; Constitution, and Press Relations, Mrs. King; and vice-chairman, Leland R. Alexander.

The first meeting of the executive board was held at Atlanta, September 22. A program of work was outlined for 1945–46 and plans were made for the joint meeting of the Georgia and the Atlanta Dietetic Associations, which was held at the Biltmore Hotel, November 10. Graduates of the 1945 course in institution management at Georgia State College for Women have received the following appointments: Betty Bowden, Duke University; Emma Burch, Charlotte Memorial Hospital, N. C.; Rachel Dickey, Watts Hospital, Durham, N. C.; Jane Harrell, Johns Hopkins University, Baltimore; Nora Payne, Harper Hospital, Detroit; and Sarah Rudolph, University of Michigan, Ann Arbor. Institution management graduates of the University of Georgia have been appointed as follows: Margaret Paschall Chapman, Michael Reese Hospital, Chicago; Mary Elizabeth Lang, Duke University; Earlene Turner, Fitzsimons General Hospital, Denver; Jessie Vannerson, Massachusetts General Hospital; and Celeste Hooks, Vanderbilt University Hospital, Nashville, Tenn.

Hawaii Dietetic Association. The following officers were elected for the coming year: president, Carol Mitchelson, University of Hawaii; vice-president, Frances Janda, St. Francis Hospital; secretary, Mary Pittman, Vocational School; treasurer, Mary Murai, Kuakini. Nominating Committee members were elected as follows: Martha Reilly, Fumi Soditani, Chrissa Wendt, Kathryn Shellhorn, and

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Marjorie Abel. Leis were presented to the retiring president, Lilillian Elsholtz, and the incoming president. The new executive board appointed the following committee chairmen: Diet Therapy, Carey D. Miller; Community Education, Martha Reilly; Administration, Miss Wendt; Professional Education, Veda M. Tochterman.

Mrs. Antoinette Faaborge has returned after a year's leave of absence on the mainland. The following also vacationed at their mainland homes: Miss Janda, Miss Reilly, Miss Mitchelson, Evangeline Marshall, and Catherine Gruelle.

Illinois Dietetic Association. The fall meeting was held in Chicago, December 1, with Kathryn A. McHenry, Veterans Hospital, Hines, president-elect of the association, as chairman. The program included: panel discussion, "Clinical Dietetic Training for the Student Nurse," led by Mrs. Genevieve Gormican North, Professional Education Section chairman; "New Problems in Diet Therapy," Mrs. Jane Pond, Diet Therapy Section chairman; panel on "Modern Trends in Personnel Management," Elizabeth Sears, Food Administration Section chairman; "Community Nutrition," Herta Breiter, Community Nutrition Section chairman. At the business meeting, Beulah Hunzicker reported on the meeting of the officers and House of Delegates, A. D. A.

A message from the president, Mrs. Dorothea Fletcher Turner, in the fall issue of the *Bulletin*, includes the statement that there are now 576 members of the association, and consequently 11 members of the House of Delegates.

Officers for the coming year, aside from those mentioned above, are: vice-president, Mary McKittrick, Mercy Hospital, Chicago; secretary, Jean Riggs, Michael Reese Hospital, Chicago; treasurer, Margaret Smock, West Suburban Hospital, Oak Park.

Massachusetts Dietetic Association. Recent appointments at Cambridge Hospital, Boston, include: Dorothea Bartlett, formerly at Memorial Hospital, Nashua, N. H., to supervise the pay cafeteria, and Julia Kinney, Veterans Administration, Ohio, to supervise the main kitchen.

Elizabeth Douglas has resigned her position at Cambridge Hospital to become an Army Medical Department Dietitian.

Ruth Long, graduate of Beth Israel Hospital training course, is now assistant dietitian at the New England Baptist Hospital.

Eleanor Mason, Madras University, India, is a student at the Harvard School of Public Health. She is interested in public health nutrition and intends to direct a training course for nutritionists on her return to India.

Mrs. Beula Becker Marble has returned from Evanston, Ill., to her home in Boston. Mrs. Myrtle Tierney Evans has joined her husband in Columbus, Ohio.

A daughter was born to Mrs. Katherine Bampana Giromini, October 3, at Brookline.

Michigan Dietetic Association. The program of the meeting on November 10 at the Hotel Statler, Detroit, included the following subjects and speakers: "The Vitamin Concentration in the Urine of Breast Fed Infants During First Week of Life," Dr. Brenton Hamil, Henry Ford Hospital; "Present Day Purchasing," Jack Laurence, Greenfield Restaurants; "The A. D. A., Our Association," Dr. Helen Hunscher, Western Reserve University; "Recent Phases of Professional Education," Dr. Margaret A. Ohlson, Michigan State College.

Mrs. Jean Gardner and Mrs. Lillian Seegers have resigned from the staff of the Department of Health, Detroit. New staff members are: Roberta Thomas, Virginia Buck, and Jane Wyatt.

New Hampshire Dietetic Association. The annual meeting was held on October 26, 1945, at the Colonial Inn, Concord. A revised constitution, drawn up according to the American Dietetic Association pattern, was adopted, and the following officers elected: president, Millie Osgood, Elliot Hospital, Keene; president-elect, Eva Hunt, Margaret Pillsbury General Hospital, Concord; vice-president, Shirley Mitchell, Mary Hitchcock Hospital, Hanover; secretary, Verna Payson, State Department of Education, Concord; treasurer, Mildred Flye, Laconia Hospital, Laconia.

R. Alberta Hughes, director of nutrition, Peter Bent Brigham Hospital, Boston, presented a paper on "The Training of Student Dietitians"; Mrs. Helen McLaughlin, University of New Hampshire, Vivian Rockwood, Keene Teachers College, and Verna Payson and Ruth Cutter of the Concord schools, discussed school lunches in New Hampshire. First Lt. Miriam S. Ryer, Grenier Field, gave a glimpse of the life of an Army dietitian; and Mrs. Martha Smith Fry, nutrition field representative, American Red Cross, presented the proposed peacetime program for that organization. Three senior home economics students from the University of New Hampshire were guests of Helen Gilson for the day, and Theodora Wakefield, president, Vermont Dietetic Association, was also a guest. Several new members were present for the first time.

Dorothy McLaughlin, the retiring president, left New Hampshire November 1 to join the staff of the New England Poultry and Egg Institute, Boston. Mrs. Mertan Winterton succeeds Mrs. Hattie Pearson as dietitian, Portsmouth Hospital. Kate Burns, formerly of Milford, Delaware, is now chief dietitian, Memorial Hospital, Nashua. Grace Wallace is now chief dietitian, Elliot Hospital, Manchester.

New Jersey Dietetic Association. The annual fall meeting was held November 13 at New Jersey College for Women, New Brunswick. Section reports were submitted by the following: Administration, Marie Monette; Diet Therapy, Elizabeth Eastwood. Other reports given were by the secretary, Louise Smith; treasurer, Elaine Loseke; legislative chairman, Irma Donnelly; and publicity chairman, Sophia Morris. The following officers were elected for 1945–46: president, Marie O'Hora; president-elect, Edna Frohlin; vice-president, Helen Kilpatrick; nominating committee: Katherine Booth, Winifred Cushing, and Elizabeth Eastwood. Speakers included Gladys E. Hall, Executive Secretary, A. D. A.; and Dr. Charles Stevens, Rutgers University. Lt. Beatrice Goldstein, recently returned from England and now stationed at Camp Shanks, was among those attending the meeting.

New appointments include: Aurora Dufault, East Orange General Hospital, now head dietitian, Summerset Hospital, Summerville; Mary Alice White, East Orange General Hospital, and Bette Jean Van Cleave, graduate of student training course, Beth Israel Hospital, Newark, now at Orange Memorial Hospital; Marcella Beffa, Roosevelt Hospital, New York, now representative of the National Dairy Council in New Jersey, Pennsylvania, and Delaware.

New students in the training course for dietitians at Beth Israel Hospital include: Irene Snyder, Judith Polak, Lucille McCormick, Bette Bhear, and Alice Sorenson.

Greater New York Dietetic Association. The executive committee has circularized among association members an appeal concerning the Federal School Lunch Program now under consideration in Congress. It is believed that only a strong expression of public opinion in its favor, given at once, will serve to prevent withdrawal of this valuable means of improving the nutrition of the children of the

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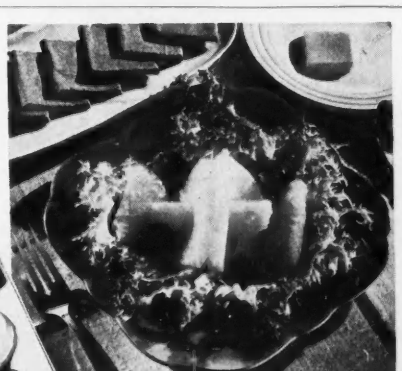

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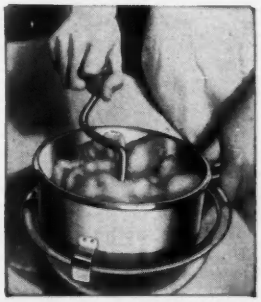

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United States. Immediate communication to senators and congressmen was strongly urged.

New York State Dietetic Association. Members of the executive committee for 1945–1946 are as follows: president, Ellen Guernsey, Strong Memorial Hospital, Rochester; president-elect, Alta B. Atkinson, 210 E. 68 St., New York; vice-president, Meredith Jones, Memorial Hospital, Syracuse; secretary, Louise Schwartz, Batavia Hospital; treasurer, Elizabeth Henry, Visiting Nurse Association, Rochester; member, House of Delegates, Emma Feeney, 315 Ryerson St., Brooklyn. Section chairmen are: Administration, Josephine Deppoliti, Oneida City Hospital; Diet Therapy, Doris Johnson, Presbyterian Hospital, New York; Community Education, Ruth Welton, Department of Health, Suffolk County, Riverhead; Professional Education, E. Alliene Mosso, St. Luke's Hospital, New York. Committee chairmen include: Historian, Ruth Palmer, State Teachers College, Buffalo; Nominating, Mary Henderson, Albany Hospital; Membership, Miss Schwartz, Batavia Hospital. The editor of the bulletin is Marion Byrne, Eastman Kodak Company, Rochester.

The first meeting for the year of the Hudson Valley Dietetic Association was held at Albany Hospital, October 1, with Dr. R. S. Cunningham, dean of Albany Medical College and administrator of the hospital, as guest speaker.

The following were graduated from the course for student dietitians at Albany Hospital July 1: Genevieve Fossatti, Betty Hemmings, June Larsen, and Isabel Tappart. A class of 6 students entered the course August 1: Helen Badger, Utah State College; Elizabeth Bossen, Iowa State College; Ruthe Guthrie, Seton Hill College; Annie Jo Hardage, University of Alabama; Anne Linder, Michigan State College; and Sara Usher, University of Mississippi.

Recent appointments throughout the state include the following: Barbara Graves, stationed at Letterman General Hospital, San Francisco; Martha Wallace O'Melia, Samaritan Hospital, Troy; Evelyn Stook, Mary McClellan Hospital, Cambridge, Mass.; Katharine Bilbey, formerly Latter-Day Saints Hospital, Salt Lake City, now chief dietitian, University Hospital, Syracuse; Shirley Tefft, Memorial Hospital, Syracuse; Jean Doane, Syracuse General Hospital.

Ohio Dietetic Association. Helen Pond, a veteran dietitian of two world wars, was a speaker at the opening meeting of the Columbus Dietetic Association. She was with the Army of Occupation in Germany in World War I, and during World War II she was imprisoned in Manila and later was rescued by a group of fliers, one of whom was also present at the dinner meeting in Columbus.

A meeting of the executive board, Ohio Dietetic Association, was held at the Deshler-Wallick Hotel, Columbus, October 27. Elizabeth Perry, member, House of Delegates, reported the meeting in Chicago. Several problems of reorganization under the new Constitution were discussed.

"Legislation Versus Education in Food Handling" was discussed by Dr. Warren Hall, Toledo Bureau of Sanitation, at the second meeting of the year of the Toledo Dietetic Association.

Transfers include: Carol Jacobs, Mt. Sinai Hospital, Cleveland, to Manhattan High School, New York; Ida Feren, formerly of Mt. Sinai Hospital, to Jewish Hospital, Brooklyn; Marese Cohen, City Hospital, Cleveland, to Clark's Restaurants. Recent appointments at Cleveland Clinic Hospital include Lois Kelly and Margaret Zeches; Miss Kelly received her student training at Massachusetts General Hospital and Miss Zeches at St. Luke's Hospital, Cleveland. Mrs. Angeline Miller Parks, Cleveland, is teaching nutrition to preclinical students at Mt. Sinai Hospital.

Frances MacKinnon addressed the Cincinnati Dietetic Association recently, describing her work in a children's hospital in Lima, Peru.

Seeking to broaden their knowledge of liberal and applied arts, several of the dietitians at the Good Samaritan hospital are attending evening classes at the University of Cincinnati. Constance Brown, graduate of the Good Samaritan Hospital training course, is now a therapeutic dietitian at Mercy Hospital, Sacramento, Calif. Sister Blesilla, member of the House of Delegates from the Montana Dietetic Association, was a guest of the Nutrition Department, Good Samaritan Hospital, October 18.

Mary Jane Ulrich, formerly dietitian in the personnel cafeteria, Good Samaritan Hospital, was married to Capt. Charles A. Reutinger in Columbus on October 13.

At the October meeting of the Akron association, Miss Dearch of the Dairy Council discussed their educational program.

Edna Gilbert, director of lunchrooms, Youngstown public schools, taught a two-week's course last summer, a workshop for school lunchroom managers, at the University of Alabama. She also taught the same course at Columbia University.

Recent appointments include: Frances Tamarkin, graduate of Ohio State University who interned at Michael Reese Hospital, Chicago, now assistant in diet therapy at the South Side Unit, Youngstown; Mrs. Lillian Haskell Keefer, former hospital dietitian, now manager of the lunchroom, East High School, Youngstown.

Mrs. Helen Trimble Hansbrough, former Coffee Shop dietitian at Good Samaritan Hospital, Cincinnati, has a second son, John Fenwick, born on September 4 at Fort Royal, Virginia.

Cincinnatians have enjoyed the visits of several Army dietitians recently. Lt. Mary Louise Quinlan Timmerman, graduate of Good Samaritan Hospital, visited the dietary department there before reporting to Fort Devens, Mass., for reassignment. Lt. Doris Mauntler, Headquarters General Hospital, Camp Butner, N. C., visited Christ Hospital en route to her home in Woodstock, Ohio, on a 14-day furlough. Lt. Jane Rogers, formerly of Fort Logan, Colo., visited Christ Hospital while on terminal leave before joining her husband who is serving his internship in Denver. Lt. Hannah E. Knapp, now Mrs. Robert H. Jones III and living in Shaker Heights, Ohio, who served in North Africa and Italy since 1943, recently visited Christ Hospital while on her terminal leave. Lt. Doris Klaumann, a graduate of Christ Hospital, Cincinnati, returned from service in England last July. Since that time she has been stationed at Jefferson Barracks, near St. Louis.

Mrs. Helen Johnson Vallager resigned her position as floor kitchen supervisor at Christ Hospital, October 15, when her husband returned from service in Panama. Ann Turner, her assistant for several months, takes her place. Mrs. Ruth Ray Hudson, graduate of last year, will join the staff as relief dietitian, December 1.

Cincinnati dietitians were invited to hear Dr. Jerome Conn, University of Michigan, speak on "Hypoglycemia" at the Academy of Medicine in October.

Recent additions to the staff at St. Alexis Hospital, Cleveland, include Sister Auria, who interned at St. Louis and is now teaching dietitian, and Betty Valdrich, now assistant.

Changes at St. Luke's Hospital in Cleveland include the resignation of Raizelle Schneider, former kitchen assistant, to accept a position as first assistant dietitian, Mt. Sinai

Troops off the Queen Mary getting their first taste of home

"Bro-ther, it must rain milk back here!"

It's midnight, and the huge troopship has just eased into harbor. Beside the gang-plank, a swing band plays. Spotlights pick out banners; crowds pack the pier railings. And right up front with the "welcome committee" are truck-loads of *milk*.

Hardly does a soldier thump his barracks bag down on the dock before he dives for an ice-cold carton of milk. When a whole division lands at once, it takes about 35,000 half-pint containers to satisfy their thirst!

These men have a hefty craving for fresh milk to "catch up with." That's why it flows so freely at home-coming receptions, at processing centers, and at hospitals, too, where one recreation worker claims it outranks blondes in popularity!

Out of service, it's more than likely this army-fostered appetite for milk, ice cream and other dairy products will carry into civilian life. A good point to remember, for the cook who takes over from Uncle Sam.

And while you fill your ex-fighter's order for these favorite foods, National Dairy continues its effort to safeguard their purity and improve their quality. Our laboratories—incubator of many important wartime developments—continue to find *new* ways in which milk—"nature's most nearly perfect food"—can contribute to the nation's health.

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Hospital, Cleveland. Frances Corsi has been appointed assistant floor kitchen dietitian at St. Luke's Hospital, and Mary Agnes Pohl, in charge of employee training supervision, preparation of manuals, and classes for training counter women, pantry maids, and other kitchen employees.

Recent births include: a son, John Louis, to Phyllis Rockstein Malbin, formerly assistant at Mt. Sinai Hospital, Cleveland, now at Norfolk, Va.; Mr. and Mrs. I. G. Orellana, a son, William Bryant. Mrs. Orellana taught nutrition classes at Mt. Sinai Hospital for several years, and relieved staff dietitians for short periods of time.

Officers of the Cleveland Dietetic Association for this year are: president, Marian Buck, Cleveland Clinics; vice-president, Mrs. Jane Diehm Stewart, formerly of the Cleveland Health Council; secretary, Magdalin Klobe, St. Luke's Hospital; treasurer, Josephine Friedman, City Hospital. The first meeting of the year was held at the University Hospital Nurses' Home.

Inistore Simms, dietitian of Northside Unit, Youngstown Hospital, has completed plans for a new set of kitchens and offices for the new wing to be built there. Mary Leatherman has accepted a position as administrative dietitian, Mt. Carmel Hospital, Columbus. Mrs. Betty Hunter, therapeutic dietitian, Ohio State University Hospital, is on leave of absence due to the return of her husband after two years' overseas service. Kathleen Scobie, recently returned from two months in Newfoundland, gave an interesting report of her experiences at the Journal Club meeting of the Ohio State University Hospital Nutrition Department.

Members of the Columbus Dietetic Association attended the convention of the Ohio State Restaurant Association in November, and report that the program included ideas for personnel managers and dining room operators. Mrs. W. Karl Dickson, assistant dietitian, Lima Memorial Hospital, Lima, resigned December 1, following the return of her husband from overseas duty with the U. S. Navy. They will make their home in Escanaba, Mich.

Oregon Dietetic Association. At the November 14 meeting, the following officers were elected for 1945–46: president, Hazel M. Baker, State University Tuberculosis Hospital; president-elect, Margaret Fuller, Providence Hospital; vice-president, Louise Clark, U. S. Veterans Administration Hospital; secretary, Phyllis Taw, Doernbecher Children's Memorial Hospital; treasurer, Bertha Deissner, Emanual Hospital. The program included a tour through the newly renovated dietary department of Emanual Hospital and the new Nurses' Residence. Recent appointments at the hospital include: Miss Deissner and Julia Minsinger, assistant therapeutic dietitians; Helen Price, assistant administrative dietitian; and Etta Featherston, teaching dietitian.

Mary Jane Cooper, formerly at Doernbecher Hospital, is now director of dormitories at Reed College. Miss Taw replaces Miss Cooper at Doernbecher Children's Memorial Hospital.

Good Samaritan Hospital has announced two appointments: Marjorie Chase as assistant administrative dietitian, and Mary Alice Richardson as teaching dietitian.

Doris L. Windsor has recently joined the staff at the Veterans Administration Hospital.

The following interns began their training in hospital dietetics at the University of Oregon Medical School, July 1: Marjorie Gray, University of Utah; Beth Rene Noble, State College; and Gwyneth Heath, University of Illinois. Those who entered on October 1 include: Helen Doyle, University of Wisconsin; June Coffin Yerrington and Elizabeth Gibson, Iowa State College; Helen Cary, University of Washington; and Jacqueline Hewitt, Montana State College.

The Good Samaritan Hospital Course for Student Dietitians includes the following interns: Helen A. Olsen, University of North Dakota; Vera Liebetrau and Roneta Reddy, University of Wisconsin; Helen Waxler, University of Washington; Gloria Fallon, Montana State College; Bonnie Jean Brown, University of Idaho; and Margaret Pittenger, University of Utah.

Philadelphia Dietetic Association. The November 13 meeting held at Pennsylvania Hospital drew a very large attendance. The topic of the meeting, "Student Nurse Teaching and State Board Exams" was chosen primarily because of the large number of failures in Pennsylvania State Board Examinations and as a means of showing the young teaching dietitians some of the ways of applying theoretical teaching to everyday practical experiences. Loretta Johnson, chairman, Pennsylvania State Board of Nurse Examiners, explained methods of grading used and percentage of failures in dietetics compared to those in other subjects, and stated that she is recommending that no teaching hospital employ fewer than two dietitians. Elizabeth Miller, Philadelphia General Hospital, explained the aims in teaching as set forth by A. D. A., and illustrated in a number of ways how to make the lesson being taught of practical interest. She emphasized the discussion method and the use of simulated clinics and rounds with doctors to encourage discussion and dramatize the various and sometimes isolated units of teaching.

The following changes at Mt. Sinai Hospital have been announced: Mrs. Amy M. Jay, Ohio State University Hospital, now instructor in dietetics; Mrs. Mary G. Line, student dietitian, now therapeutic dietitian. Katherine Runell, formerly dietitian at Mt. Sinai, is now at Stanford University Hospital, San Francisco, and Betty Brewer, former instructor at Mt. Sinai, is now with Veterans Hospital, Bronx, New York. New students are: Claire Seamans, Marie Habina, Frances Adamo, and Martha Gazelle.

Philadelphia General Hospital news items are as follows: Helen E. Elsey was married in October to Dr. Frederick Phillips and is living in Quakertown. Patricia Neilan, graduate of Seton Hill College and Florida State College approved training course, is a recently appointed staff member. Louise Wolcott, University of Texas, and Carolyn Medille, University of Delaware, are enrolled as student dietitians. Former students have received the following appointments: Priscilla Maine, Hitchcock Memorial Hospital, Hanover, N. H.; Eleanor Langdon, St. Luke's Memorial Hospital, San Francisco; and Dorothy Bolick, Duke University Hospital.

St. Louis Dietetic Association. At the November meeting of the St. Louis Dietetic Association, Mrs. Theodora Stebbins, member, House of Delegates, reported on the meeting in Chicago which she had attended. Helen McLachlan gave an interesting account of the meeting of the Dietary Advisory Council to the Veterans Administration, recently appointed by General Omar Bradley, Director of Veterans Affairs.

A greeting from the Missouri Dietetic Association was extended by Mrs. Vesta Odell, president, who urged each member of the St. Louis group to take an active part in the state and national projects.

Virginia Dietetic Association held a two-day conference, November 9–10 at the John Marshall Hotel, Richmond. The general theme for the conference was "Tomorrow's Resources" and the featured speaker was Gladys E. Hall, executive secretary, American Dietetic Association, who spoke on "Looking Ahead" at the dinner meeting. Student dietitians from the Medical College of Virginia gave a skit during the dinner on "A Glimpse Into the Future."

Other speakers on the program included Lt. Jean Buchanan who spoke on "A Year in England With Our

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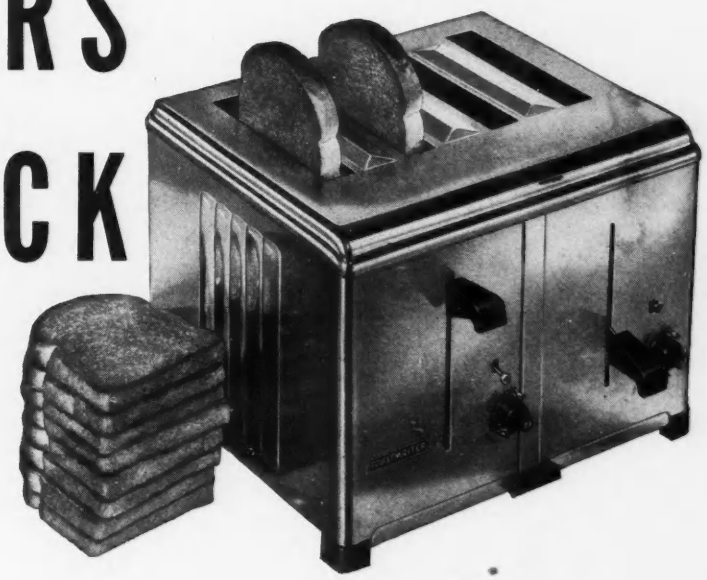

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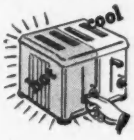

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TOASTMASTER Toast

The National Habit Wherever Folks Eat!

Armed Forces," and Helen G. Everett, assistant director, Nutrition Service, Eastern Area of the American Red Cross, who discussed "Nutrition in the World Today." Film and slides on frozen foods were shown.

The newly installed officers are: Mrs. Sally Ann Ellison, nutrition consultant, State Department of Health, president; Dr. Alice Edwards, Mary Washington College, Fredericksburg, president-elect; Mabel Gladin, Madison College, Harrisonburg, vice-president; Charlotte Old, St. Elizabeth's Hospital, Richmond, secretary; Irene Renz, Norfolk Navy Yard Cooperative Association, treasurer; the delegates are: Bertha Ide, Norfolk General Hospital; Elizabeth Woodard and Kathryn Heitshu, Medical College of Virginia, Richmond. Marguerite Pettee served as chairman of the program and Dorothy McLeon as chairman of local arrangements for the meeting.

Officers of the Tidewater Dietetic Association for 1945–46 are: president, Irene Renz; vice-president, Minerva Hall; secretary, Louise Maus; treasurer, Alice Wiggins; chairman of Nominating Committee, Clara Soter.

Richmond Dietetic Association announces the following officers: president, Elizabeth Lounds; vice-president, Agnes Flippo; secretary, Margaret Kilian; and treasurer, Margaret Mason.

Lt. Maude Middleton, formerly assistant dietitian at Johnston-Willis Hospital, Richmond, is now at Camp Butner, N. C.

Lts. Annie Laurie Crance and Kathleen Creech have returned to this country after service in the Pacific and European theaters of war, respectively. Lt. Margaret Fitzhugh has also returned from overseas duty.

Margaret E. Bock, formerly administrative dietitian, Medical College of Virginia, is now with the American Red Cross, Alexandria.

Evelyn Langston, formerly dietitian at Westhampton College, Richmond, is now home economist with the Frigidaire Corporation, Dayton, Ohio.

New members of the dietary staff at the Medical College include: Dorothy Medlock, Sarah Amis, Elsie Hooker, and Dorothy Perkinson. The 1945–46 class of student dietitians includes: Mrs. Eleanor Berglund, Dorothy Chapman, Vera Funk, Betty Johnston, Sara McClanhan, Doris McCloskey, Evelyn Motley, Bernadine Nelson, Cornelia Nye, Mary Rourke, Dorothy Shultz, Evangeline Stone, and Mrs. Nellie French Willits.

Mrs. Carolyn Wallace Heitshu, formerly on the staff of the Medical College of Virginia, has announced the birth of a daughter on September 28.

News From Advertisers and Exhibitors. In a booklet intended to supply answers to various questions concerning health habits of children, National Dairy Council, Chicago 6, stresses the importance of regularity in mealtime and bedtime, suggests menus for breakfast, noon, and evening meal, and proper eating habits. Folders on exercise for adults are also available upon application, as well as a pamphlet entitled *Baby Care Digest* containing condensations of articles from *Parents' Magazine*.

Production of Toastmaster roll and food warmers is already under way, according to an announcement by McGraw Electric Company, Elgin, Ill. For the time being, production will be limited to the 2, 3, and 4-drawer sizes, most popular in the past and for which the heaviest demand exists.

A recent issue of *Kitchen Chatter*, edited by Mary Hale Martin, Home Economics Department, Libby, McNeill & Libby, Chicago 9, includes a chart showing the varieties, style of pack, weight, measure, and approximate number of servings in the No. 2½ and No. 10 cans of the most popular canned fruits. A number of desserts incorporating fruits are suggested. A booklet featuring meals easily prepared from canned foods is also available.

Elspeth Bennett, manager, Nutrition Service, Ralston Purina Company, Checkerboard Square, St. Louis 2, announces the publication of the tenth edition of *Allergy Diets*. The lists of foods which the patient can have and the lists of foods he cannot have, on each of four allergy diets (wheat-free, egg-free, milk-free, and wheat-egg-milk free) have been revised in accordance with current food preparation and processing. One new feature is the inclusion of a list of the terms used in present-day labeling of processed foods to indicate the presence of an ingredient excluded from the diet. Other important new features are the daily dietary and meal planning guides which assure the patient a nutritionally adequate diet, and special recipes and food preparation directions. Diet sheets are supplied to physicians without charge in pads of 25 sheets for each diet.

According to *Single Service News*, published by the Paper Cup and Container Institute, 1790 Broadway, New York 19, WPB has removed wartime restrictions on civilian use of paper cups and containers. Once more they may be freely used by soda fountains, restaurants, etc. Schools, hospitals, war plants, and other users no longer need special priority orders to purchase them. The Army and Navy, however, still have first call on available supplies.

The National Association of Hotel and Restaurant Meat Purveyors held its third annual meeting in Chicago, October 8. The meeting included a round-table discussion on the various problems confronting the hotel supply house industry, in which several members of the OPA participated. Mr. Peter H. Petersen, of Petersen-Owens, Inc., New York, was elected 1945–46 president.

The American Academy of Pediatrics educational film, "When Bobby Goes to School," may be exhibited by any licensed physician in the United States on application to the distributor, Mead Johnson & Company, Evansville, Ind. The exhibit is a 16 mm. sound film, dealing with the health appraisal of the school child, and may be borrowed without charge or obligation.

The Paraffined Carton Research Council, 111 W. Washington St., Chicago 2, has prepared an article on sandwiches of various kinds and shapes, such as hot, toasted, triple decker, club, and the variety of bread best suited to the many different fillings. The importance of high quality, fresh butter is emphasized, also the necessity for wrapping and packaging in paraffined cartons as well as proper refrigeration.

Forty state winners in a nationwide 4-H Club contest in a study of better farming methods met in Chicago, December 2–6, for a National 4-H Club Congress. Westinghouse Electric Corporation, Pittsburgh 30, sponsors of the 4-H Club Electric Program, awarded to 6 outstanding individuals the $200 Westinghouse scholarship awards. Many of the enterprising farm youths carried out time and motion studies. One girl made a step-by-step survey of the family washing, by the scrub-board method and with electrical equipment.

A survey to establish water requirements in the homes of automatic washing machine owners has been conducted by Mrs. Julia Kiene, director of Westinghouse Home Economics Institute, Mansfield, Ohio. It was computed that users of conventional washing machines used 96 gal. mixed hot and cold water to do an average weekly wash of four loads. These figures allowed for filling the washer and 2 rinse tubs twice during the laundry period.